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CORRECTION.

In our article on the ammonia-soda process, the other day, we were guilty of a slip of the pen, in stating that the ammonia salt could be recovered by the use of calcium carbonate. *Caustic lime* is what we should have said; and writing, as we did, with the words of Professor ROSCOE on the subject before our eyes, we are unable to understand how such an oversight could have occurred. As chemists are aware, the calcium carbonate, being insoluble in ammonium chloride, would give no reaction at all. Indeed, it is itself the product of a reaction exactly the reverse to that which our article apparently contemplated; for calcium carbonate is precipitated when ammonium carbonate is added to a neutral or alkaline solution of a calcium salt. *

THE BINGHAM COMPANY.

This is an abbreviated form of the title of a French company, *La Société des Mines d'Argent et Fonderies de Bingham*, which is reported to have purchased at 17,000,000 francs the Old Telegraph mine in Bingham Cañon, Utah. The promoters of this scheme have seen fit to keep it pretty quiet in this country; and it was not until this week that we became acquainted with the contents of the prospectus of the company and the reports of its experts. These are so absurdly sanguine and exaggerated, that any expectations based upon them will certainly be disappointed; and the effect of such a disaster upon the mining interest in Utah will be lamentable.

The wisdom of sending inexperienced foreign experts to look at a mine, the value of which can only be estimated by those who know its history and that of its neighbors, is beautifully illustrated by the reports of Mr. M. CHAPER, Civil Engineer, and Mr. C. OCHSENIUS, Mining Engineer, which are put forward by the Bingham Company as the grounds of its faith and purpose.

Mr. CHAPER, having to estimate "the ore in sight," begins by saying that, owing to the shape of the underground workings, he could not make measurements, and proceeds to prepare the way for safe conclusions by denouncing as a mistake the general impression among the miners that the ore in the lead mines of Bingham occurs in pockets or chimneys. In his opinion, the veins are decidedly regular. It is only the workings that are irregular! We infer that the vast masses of material which the Bingham miners have left standing in abandoned levels, because, in their ignorance, they fancied the rock too poor to pay the expense of extraction, are considered by this gentleman to be valuable reserves. This, at least, throws some light on the following estimate, which, in the total absence of measurements, we regard as a triumph of scientific guessing. It will be noticed that Mr. CHAPER guesses five times instead of once—a neat device to reduce the "probable error." He thus arrives at this result:

	Cubic meters.
1. Ore near present underground workings	217,751
2. " " " " "	773,584
3. " entirely below present workings	37,337
4. " " " " "	247,300
5. " in 500 meters of entirely unexplored ground	500,000
Total	1,775,972

—or more than 3,000,000 metric tons of 2204.7 lbs. avoirdupois.

No exact valuation of this mass of ore is attempted; but fifteen assays of samples taken in different parts of the mine are placed in immediate connection with the above figures; and the reader is left to infer that the average of these assays, namely, 60 oz. of silver and 0·43 oz. gold per ton, represents the value of the "reserves."

After which this exceedingly civil engineer remarks that there is nothing to prevent the continued mining and treatment of ore at the present rate, namely, 100 tons per day, at a profit of 110·31 francs per ton; which renders the calculation of annual profits a simple matter. For $365 \times 100 \times 110{\cdot}31 = 4{,}026{,}315$ francs, which may easily be doubled or trebled. And he perorates in italics thus:

"If we add to the above the saving effected by reduction of losses and the decreased costs due to an increased amount of ore handled, and lastly the saving directly effected by a cheaper coke, we arrive at figures truly enormous."

Indeed, there is no telling what may not be arrived at by this method of calculation. The only trouble is that, among American investors at least, the method itself is played out.

Mr. OCHSENIUS, the mining engineer, agrees with Mr. CHAPER in severely criticising the irregular methods of mining hitherto pursued. Both these gentlemen know a good deal more about the subject than the natives do. Mr. OCHSENIUS, for instance, describes part of the Telegraph ore as "Comstock-like"; and in another passage says the fabulous production of silver-lead from the Comstock is diminishing. We were already aware that the Comstock product of lead could only be described by the word *fabulous;* but the infinitesimal accuracy of a foreign observer who can actually trace its diminution fills us with awe. This operation involves the higher mathematics, such as the analysis of that enigmatical quantity, $\sqrt{-1}$, or those curious operations upon $\frac{0}{0}$, etc., which are now introduced for the first time into truly practical application.

Mr. OCHSENIUS descends, however, to the more prosaic enumeration of assays, and gives the results of a number, performed on lots ranging from 10 to 1328 tons. It is a curious fact that all the lots larger than 10 tons are poor in silver (15·35 to 21·14 oz.), the lowest figure belonging to the largest lot, while three lots of 10 tons each show 60, 62, and 80 oz. of silver per ton respectively. This would lead less scientific critics to discard the small lots, as probably selected ore, and at all events not nearly so trustworthy as guides in estimating the value of the total product. But Mr. OCHSENIUS seems to think an assay is an assay, and an average is all that a fellow knows, divided by the number of questions he has asked.

In determining the quantity, he proceeds with great care. Delicately weighing four classes of ore, and dividing the aggregate weight of equal quantities by four, he fixes the weight of one cubic foot at 147 lbs. Mr. CHAPER, less exact, had assumed about 105 lbs. It is evident at once that the difference involves large dividends to the Société de Bingham. We will not follow him through his detailed estimate. Suffice it to say that, after deducting 10 per cent for exaggeration, interposed bodies of quartz, etc., he arrives at a minimum of 750,000 tons. This is less than Mr. CHAPER'S 3,000,000; but this is the amount, to quote Mr. OCHSENIUS'S striking phrase, "*que j'ai pu toucher du doigt.*" It is to be expected, of course, that some hundreds of miners will be able to touch with their picks what one man could have touched with his finger.

The owner of this remarkable finger has employed it in writing a supplementary report, under date of January 4th, 1879, in which he furnishes a new calculation as to the value of the ore. The "average" of 48 samples, assayed by Mr. F. WEIL, of Paris, and for additional security by

Prof. FRESENIUS, of Wiesbaden, is 20 per cent lead and 47·18 oz. per ton in silver. For still further safety, Mr. OCHSENIUS knocks off the odd ounces, and "says" 40. Then at 200 tons per day for 300 days in the year (65 days deducted, we presume, for "exaggeration and interposed" Sundays), the product would be 60,000 tons of ore containing 12,000 tons of lead, worth, at 300 francs per ton, 3,600,000 francs; to which is to be added $40 \times 60{,}000 = 2{,}400{,}000$ oz. of silver, worth, at 5 francs per oz., 12,000,000 francs. Total gross value per annum, 15,600,000 francs.

The cost of production he figures as follows:

Mining and transportation, 42½ fr. per ton	2,550,000 fr.
Smelting ($4), 20 fr. per ton	1,200,000 "
Losses, 10 per cent.	1,560,000 "
Refining, 12,000 tons at 110 fr. per ton	1,320,000 "
General expenses, etc.	970,000 "
	7,600,000 fr.
Which, subtracted from gross proceeds, leaves	8,000,000 "

But this is not all. It remains to show what can be saved, namely, $1 per ton by more rational mining; $1 per ton in transportation; 20 cents per ton in smelting (which is already set down at $4 only); $8 per ton of bullion by adopting the Rozan method of refining (which is such a huge success at Eureka); grand total $228,000, or 1,140,000 fr., making the total annual profit 9,140,000 fr.

Mr. OCHSENIUS adds the following statement as to quantity of ore:

"I estimate the quantity at about one million of tons, because I count only that which is palpable. [As his former estimate was 750,000 tons to be "touched with the finger," we infer that he has employed additional means of determining palpability. Perhaps he has been running his head against the facts, or putting his foot in them.] But on the west of the property nearly one third of the mine has not been touched—is not included in my estimate. This is the same vein or block of ore. As to its continuation in depth beyond the point to which the work has been pushed (about 140 meters), I have no doubt. Experience has proved the old axiom of the miners, that the veins of lead continue more regularly than all others in depth. As this is equally true from the geological point of view and from the stand-point of the practical miner, it is proper to include in my calculation the entire length of the vein belonging to the Old Telegraph Company. *Then the quantity of ore found above the 460-ft. level is not less than* 1,500,000 *tons.* The quantity below that level, supposing the vein in depth has the known dimensions (it is really growing larger), is also not less than 1,500,000 tons. The total ore should therefore be fixed at a minimum of 3,000,000 tons."

It will thus be seen that the civil engineer and the mining engineer manage to arrive at the same figure, and corroborate each other beautifully. But the prospectus shows great caution in accepting that figure. For absolute security, 100,000 tons have been deducted, and the amount which can be really relied upon is put at 2,900,000 tons. But perhaps this reduction of quantity is due to the resolve not to work poor ores; for the prospectus declares that the ore contains 4 kilo. silver and 35 grams gold to the ton. Assuming this to be the metric ton, the figures represent 117 oz. silver and 1 oz. gold to the ton of 2000 lbs. avoird.!

Further on, there is a statement of "actual" profits from March, 1876, to December, 1878, amounting to 4,600,000 fr., or about 1,670,000 fr. per annum, followed by a statement of the future annual profit, which is to be 6,600,000 francs. But this is too modest. We had a right to expect that the company would stand by its own figures, and not be frightened at its own wealth. The real calculation ought to run as follows: 117 oz. silver = $117; 1 oz. gold = $20; 20 per cent lead (60 fr.) = $12; total value of one ton of ore, $149; costs and losses of mining, transportation, smelting, refining, etc., as per OCHSENIUS (126·6 fr.) = $25.33 per ton; net profit per ton, $123.66. Striking off, for superlative security, the 66, or, more accurately, 66⅔ cents, we have a profit of $123 \times 60{,}000 =$ $7,380,000, or say 36,900,000 fr. per annum for fifty years. This is 217 per cent on the reported price of the mine. Even supposing there were some human error about the calculation—supposing it were only 216 per cent, for instance—should not the purchasers be satisfied? There is no doubt on that head; the only question that troubles us is, why the owners are willing to sell at the ridiculously low figure of 17,000,000 fr.

For that phenomenon there is only one explanation. The owners are weak-minded, and have allowed themselves to be discouraged by the ignorant common talk of Utah. It has been the fashion out there to believe that the Old Telegraph mine is worth at present very little; that its prospects are bad; that it has not produced 100 tons in all of 40-ounce lead ore (such as it is now proved to be full of); that there never was a ton of Bingham ore smelted in Salt Lake Valley at less cost than $12, which is three times the Ochsenian estimate; that the average assay in silver of all the lead ore ever extracted from the Old Telegraph mine has not exceeded 17 ounces, and has probably been less than 15 ounces per ton; that the silver-lead bullion produced in the works contains less than 50 ounces per ton; that the entire works have for the last 12 months barely paid expenses; and that they are now running at a heavy daily loss. Now, nobody likes to be talked about in this strain; and the owners of this mine have probably yielded to the popular clamor so far as to lose faith to such an extent as to be willing to sell out for $3,400,000. It is a great pity; for the truth is that these gentlemen, and nobody else, ought to have the fabulous profits which the *Société de Bingham* will now inherit, as it were, almost gratis.

That corporation does well in making haste to secure this opportunity, without taking advice of perfidious American experts, who would undoubtedly try to prevent the purchase. If any body but Messrs. CHAPER and OCHSENIUS had given an opinion, the consequence might have been annihilation to the *Société de Bingham!* *

PERSONALS.

Our Readers are invited to send us Items for this Column.

The crop of "Wildcats" is coming up like weeds in the garden; but it is not in Wildcats that the most money will be sunk, but in the stocks of good mines which are under the control of manipulators.

The chief Medical Societies throughout the country have adopted the metric system of weights and measures. If the general government would now adopt it, we should soon be rid of the nightmare of "immemorial custom" which we now call the "American System."

Our Managing Editor, RICHARD P. ROTHWELL, Mining Engineer, proposes shortly visiting the Western mining regions on an extended tour. Parties interested in Western mines or mining properties, who wish to avail themselves of Mr. ROTHWELL'S professional services, can address him at this office.

The Lake ore miners will soon begin to get their eyes opened. We understand a large contract has been made for Spanish ores to go to Pittsburg, and it is now estimated that nearly a quarter of a million tons of Spanish and Algerian iron ores will come to this country in the next twelve months.

The French are jealous of the pre-eminence the English, with their Emma mine, and the Dutch, with their Caribou, have heretofore enjoyed, so they apparently have embarked largely in Old Telegraph. The English and the Dutch lost all they put in. How will it be with the French? Any way, it is a satisfaction to know that no American engineer recommended the purchase or made the absurd estimates criticised elsewhere in our columns.

In our advertising columns will be found a remarkable invitation addressed to the Iron-Masters of Europe and America by the government of New Zealand. The two great islands which form that rapidly prospering colony are remarkably rich in iron and coal of excellent quality. The government has within a few years constructed over 1000 miles of railroad, all the materials for which, except the sleepers, have been carried out at a heavy charge in the way of freight, etc., from England. Yet the Public Works Department of the colony is even still, with so many lines laid down and working with a dividend, only perhaps at the outset of its labors. The present Minister of Public Works, the Honorable JAMES MACANDREW, has determined to make a bold experiment to naturalize the iron industry in the colony, and has in the terms of the notice which we publish to-day, called for tenders for 100,000 tons of steel rails (or any portion thereof) to be manufactured in the colony from New Zealand ores.

UTAH MINING NOTES.

Special Correspondence of the Engineering and Mining Journal.

The mining outlook for Utah is assuming larger proportions. Reports of rich and extensive strikes are daily being made. Little Cottonwood District is rapidly coming to the front. The once famous Little Emma mine is again being developed. They have recently made a discovery of high-grade ore in the lower level of the mine. On the 18th of March, two lots of Emma ore were sold in this market. Lot No. 1 sampled 910 ounces silver and 37 per cent lead; No. 2, 236 ounces of silver, 41 per cent lead. We look with interest to the further development of this property, and there is no reasonable doubt but what this mine will yet become one of the richest ore-producing properties in Little Cottonwood.

The Joab Lawrence Company, in Little Cottonwood, shipped, during the month of February last, 344 tons of ore, which was sold for the sum of forty-six thousand dollars. The character of the ore extracted from this mine is very similar to the Emma. The mine is located on the same mineral belt, to the west of the Emma.

The Toledo Company of Little Cottonwood is selling ore in 20-ton lots that assays upward of two hundred ounces in silver per ton. D. H. Bently, the superintendent, keeps pretty quiet, but we know that there has been a large and rich body of ore disclosed in this mine.

The Lavinia Mining Company is doing and has done a large amount of work on its location. The Lavinia ledge is located on Lavinia Hill above Grizzly Flat, Little Cottonwood District. Thirty men are now employed on the mine. On the south side of the hill, a tunnel has been run on the course of the vein a distance of 1400 feet without a fault in the ledge. One thousand feet from the mouth of the tunnel a main incline shaft has been run on the vein to a depth of 340 feet. A twelve horse-power engine is located at the top of the shaft for the purpose of hoisting and supplying air. The smoke-stack is raised from the top of the shaft 100 feet through a raise, from thence 690 feet through a level, thence 200 feet to the surface. At the bottom of this shaft, a vein has been disclosed 16 feet thick with bunches of ore all through it. It is a true fissure-vein, cutting the limestone formation at right angles. The character of the ore is carbonates on the surface, running to a depth of 600 feet; from this point, the ore gradually changes to a rich chloride. During the time of Mr. J. J. O'Toole's superintendency, which is three years, there have been 1500 tons of ore extracted, averaging about 40 oz. per ton in silver.

The mine has been developed to a vertical depth of 900 feet from the surface. It is confidently expected, from the present indications in the lower levels, that another bonanza of high-grade ore will be developed.

ARCHIBALD.

THE GOLD PRODUCTION AND COST OF MILLING IN VENEZUELA, S. A.

The following comprehensive tables, with which we are favored by the courtesy of Mr. J. M. MUÑOZ, of this city, furnish valuable information never previously published. The data given of the cost of mining and milling, and the details of mill work, will be found of great interest, while the general results obtained will afford a basis of comparison with that of our own mills; although, of course, without some more specific knowledge of the nature of the ore, it would be impossible to carry the comparison to details.

WAY-BILLS OF THE MUTUAL UNION TRANSPORTATION COMPANY OF THE MINING COMPANIES IN GUYANA, VENEZUELA, FROM ORGANIZATION TO DECEMBER 31ST, 1878.

DATE	No. of trip	25 stamps. El Callao.	25 stamps. Nacupi. O. Ex. and Mg. Co.	20 stamps. Hansa.	20 st'mps Potosi.	10 stamps. Chili, Mocupia and New York.	10 stamps Caratal.	
1874.		Oz.	Oz.	Oz.	Oz.	Oz.	Oz.	Oz.
May..	1	.....	520½	.....	95¼	151⅜	763¾	.....
June.	2	.....	585¾	.....	222¾	89½	528¾	.....
July .	3	.....	778¼	.....	336	164⅛	1014	.....
Aug..	4	589	658	248¾	312½	204	1382	.....
Sept..	5	795	583	125	222¼	149¾	903¼	.....
Oct. .	6	640½	476	.....	376	192¼	443	.....
Nov..	7	338½	573¼	.....	.....	175	840	.....
Dec..	8	622	1032	.....	.....	214	968	.....
1875.								.....
Jan..	9	399½	827¾	.....	.....	135¾	805	.....
Feb..	10	444	1606	.....	962	205	803	.....
Mar..	11	1480	1317	.....	414	165	272	.....
Apr..	12	1239	1203	.....	265¾	165⅛	433¼	.....
May..	13	1173	1328	.....	123	174	427¼	.....
June.	14	1360¼	1042¾	.....	132¼	164⅝	336	.....
July .	15	1280	1131	.....	120	265	318	.....
Aug .	16	1135	1201	.....	281	271¾	299	.....
Sept .	17	1331	820	.....	312¼	355¾	322	.....
Oct..	18	1421	931	.....	309	368	245	.....
Nov..	19	1382	1023	.....	.....	325	231	.....
Dec..	20	1402	1061½	.....	.....	405⅛	262	.....
1876.								.....
Jan..	21	1387	940	30 stamps	....	193	242	.....
Feb..	22	1462	1281	Panama	.....	333½	270	.....
Mar..	23	1681	862	S.A.Mg.Co.	280	374¼	230	.....
Apr..	24	1604	1492	.....	301	380¼	261	.....
May..	25	1536	1522	.....	660	246¾	434	.....
June.	26	1424¾	843¼	.....	186	442¾	498	.....
July..	27	946	1147¾	.....	611½	284¼	601¾	.....
Aug..	28	1720¼	574	461¾	330	238½	512	.....
Sept .	29	2594¼	845½	458¾	150	347¼	620	.....
Oct..	30	3994	1334½	664¼	.....	426⅞	268	.....
Nov..	31	2793	623¾	.....	325	429¾	390	.....
Dec..	32	1682¼	258¼	957½	364½	332½	142½	.....
1877.		40 stamps.	50 stamps.					20 st'mps
Jan..	33	3122¾	.....	785½	424	225	.....	Rem'gton
Feb..	34	3598½	.....	.....	430	402	.....	Mg. Co.
Mar .	35	3726¼	.....	380¼	1345	458	132	319½
Apr ..	36	2167	19	1212	1003¾	607	.....	420
May..	37	1413¾	3021¾	208	1513	493	.....	559¾
June.	38	558¼	753½	.....	1444½	486½	.....	299¾
July .	39	1103	619¾	626½	1738½	481¼	.....	382¾
Aug..	40	1017	437¾	.....	1415	156	.....	585½
Sept .	41	1202½	.....	.....	1611	261¾	.....	.....
Oct..	42	2096¾	382	.....	902	223	.....	.....
Nov..	43	2300	586¾	.....	1050	454½	.....	.....
Dec..	44	2156	490¼	461¼	1800	303½	197½	.....
1878.							20 stamps	20 st'mps
Jan..	45	941¾	342	494¾	957	326	249¼	Nueva
Feb..	46	1377¼	269	452½	808	401½	390¾	Hansa.
Mar..	47	1532	24	448½	348	316½	90½	27½
Apr ..	48	1905½	stopped	331	353	245	.....	.....
May..	49	4204	work.	.....	3461½	562¾	510	80⅛
June.	50	5034	.....	.....	924	1003⅞	644	.....
July..	51	6117¾	.....	77¼	468	805½	1001½	.....
Aug..	52	5428	.....	.....	663	639	421¾	120
Sept .	53	4968	.....	102	420	868	879	.....
Oct..	54	3964	.....	174	209	756	632¾	.....
Nov..	55	5071⅞	.....	.....	621	568¼	111½	.....
Dec..	56	5465½	.....	.....	1069	774½	503	.....

REMARKS.—This is simply the ounces sent by the companies in bars, averaging 915 thousand fine, or almost English standard, and worth, say $18 net per oz. Much gold is carried every month for merchants and others not belonging to the Union, amounting to about on an average 500 oz. per month, but not put down here in list above. Most of this stolen from the mills by workmen; rest from hand workings and placer.

El Callao Co.—From the first trip up to May trip No. 49, they ran a "middle mail," on their own account, on a contract that only expired April, 1878. Therefore, it is but fair to calculate from trip No. 1 to No. 48 at one third more ounces for their probable product in any given month.

Nacupt Co.—Sold occasionally a few hundred ounces here for present needs after November, 1876, when they began to be financially hampered; but not before. They finally went into bankruptcy, March, 1878, and have been closed up ever since. But the foregoing pretty fairly represents their product.

Hansa Co.—Made little more than shown here; some went by private hands to Bolivar; none sold here. They stopped milling November, 1874, and did not reorganize until October, 1877.

Panama Co.—Began milling August, 1876; really began November, 1875; but exploded both boilers following December, and water-works and new boilers not finished until July, 1876. They frequently sell all their gold in Caratal; sometimes a part only. Since their failure last March, owing to poor quartz, all sold in Caratal. Full time for them is about 1000 oz. per month.

Potosi Co.—Never sold any gold here; therefore this represents their full product. The blanks are stoppages for breakdowns, repairs, or alterations.

Remington Co. only ran six months. Quartz good, but vein too small.

Mocupia and New York Co.—This represents their full product. Variations represent fewer hours by breakdowns, etc.

Caratal Co.—This also is full product. Their year's stoppage, 1877, was to pull down old mill and build new 20-stamp mill.

New Hansa.—Just begun; was drowned out by the river.

The aggregate production, as per accompanying tables, is 288,678 ounces of fine gold; and if to this is added the number of ounces that are carried by merchants and private conveyances, estimated at about 40,000 ounces more, we have a sum total of 328,678 ounces, which, at the round value of $20 gross per ounce, makes $6,573,560 produced by the mining region of Venezuelan Guyana, in four years and eight months; a surprising result, when we consider the immense difficulties of every kind that the companies have had to contend with in a wild, tropical region, difficult of access, and far removed from civilization and its advantages.

QUARTZ-MILLS IN GUYANA VENEZUELA (S. A.) GOLD MINING DISTRICT, THEIR MINES, STATE, AND THE WORK DONE FROM MAY, 1874, TO DECEMBER, 1878.

NAME OF MILL AND MINE.	OWNERS.	No. of stamps.	Drops per minute.	Weight of stamps.	Height of screens above dies.	Drop of stamps.	Tons crushed per 24 hours.	Average cost of mining and milling per ton.	Average yield per ton 2000 lbs., oz. standard gold.	When the mill first started.	Ounces standard gold produced from May, 1874, to December, 1878.	Depth of mine on incline.	Dip of vein.	Average width of vein—inches.	Direction or strike of vein.	Average of time mill has run since starting to stoppage or date.	REMARKS.
Buena Ritero.....	Venezuelan	5	35	250 Lbs.	6 In.	6 In.	4	Gold $. 10	½ to ¾	Nov., 1867.	500	Surface.	None.	None.	None.	.....	Ran about a month only, and failed. Has been moved away.
Nacupi.....	Orinoco Ex. & Mg. Co., Philadelphia.	25 50	50 60	450 600	6	12	4	24	1½ to 2½	Oct., 1868.	39,369	200	60°S.E.	34	N. 20° E.	Nearly full time to 1875; since ¼ time.	25 stamps to 1877; then 50 till shut down, April, 1878. Still idle.
El Callao.....	Venezuela & London	60	50	650	6	11	27	4 to 8	Dec., 1869.	135,822	300	45° W.	30	N. 5° W.	Nearly full time.	15 stamps to 1875; then 25 till 1877; then 40 stamps.
Potosi.....	London.....	20	50	650	3	12	30	25	2 to 4	Jan., 1870.	37,656	250	52° S.	40	N. 80° E.	¾ time.	Delays for usual breakdowns and alterations.
Mocupio and N. Y..	New York & Ven'a..	10	65	600	10	8	12	20	2¼ to 5	July, 1870.	18,592	250	52° S.	48	N. 80° E.	¾ time.	Now building 20 new stamps. Delays, breakdowns, and scarcity of water.
Caratal.....	New York.....	20 10 20	55	650	10	10	20	20	2½ to 3½	July, 1870.	19,673	200	45° E.	100	N. 20° W.	Nearly full time.	10 stamps to 1878; then 20 stamps. Lost all of 1877. Rebuilding.
Hansa.....	Ven'a & Germany...	20	60	650	9	9	24	18	1 to 1½	Oct., 1871.	610	60	55° S.	60	N. 80° E.	1-16 time.	Failed in 1873 by death of manager, and too much water. Reorganized 1878.
Remington.	New York.....	20	55	600	6	10	30	19	2 to 3	July, 1872.	3,567	75° E.	78	18	N. 45° W.	⅛ time.	Delays—too much water. Failed in August, 1877. Still idle. Delays—want of quartz.
Panama.....	Philadelphia & Ven'a	30	50	650	8	10	35	23	¾ to 1⅛	Nov., 1875.	11,119	200	35° S.	30	N. 50° W.	⅛ time.	Partially failed in 1878, from many accidents and unusual breakdowns. Five stamps average work now. Delays other than above, want of wood and water.
Union.....	Venezuela.....	5	60	550	8	8	8	16	2⅛ to 3½	Jan., 1878.	Ab't 2000 oz.	50	Mixed.	{ Mixed. 18 to 30	Mixed.	¾ time.	Now building 5 more stamps. Delays—want of water.
Nueva Providencia..	Venezuela.....	20	60	600	10	9	30	18	⅛ to ¾	June, 1878.	Nothing.	80	Mixed.	12 to 30	N.E.&S.W.	.....	Ran about a month; then stopped to search for richer quartz and water.
San Luis.....	Ven'a and France..	20	60	600	10	9	25	18	¼ to ½	Aug., 1878.	Nothing.	100	60° S.	30	N. 60° E.	.....	Ran about a month; then stopped to search for richer quartz and water.
La Eureka.....	Venezuela.....	20	Not	yet	built.	.....	.....	.....	.....	.....	.....	60	N o t	k n o w n.	.....	.....	Machinery on the road, to arrive soon.
La Concordia.....	Venezuela.....	20	....	.....	....	.....	.....	.....	.....	.....	.....	40	.....	.....	.....	.....	Machinery now erecting.

GENERAL NOTE.—All use quartz, and work their mills nearly alike for free gold (no other yet). Amalgamate in batteries; tables and copper plates; no blankets. As yet, sulphurets are in too small a percentage to save. Quartz, all won from shafts, downright 60 to 100 feet; thence on incline of vein. Three shafts only at present are incline from grass. Air-drills. Electric firing has been tried in three mines, thus far not successfully. Shoes and dies, all alike in diameter (8 in.), but vary from 7 to 10 high. Cams, single-

arm, 10 in. to 14 in. lift. Screens, horizontal slots, No. 6. Hand machine drills in two mines; not a success. Work done chiefly by single-hand drilling. Explosive, dynamite only. Water rather scarce, except May to September. But two mines as yet much troubled with water—Nacupi and Hansa. Mint assays average from ·890 to ·925, gold; from ·069 to ·079, silver.

GUYANA, VENEZUELA, S. A., Dec., 1878.

ROZAN'S PROCESS FOR DESILVERIZING LEAD.*

By Mr. Cookson.

In attempting to describe the leading features of the Rozan system of desilverizing, I must ask you to bear in mind that in principle it is in most respects identical with the well-known process of the late Mr. H. L. Pattinson, always excepting that in the former case cranes and steam supersede the more expensive system of manual labor employed by Mr. Pattinson. In both cases, however, the whole working depends on the fact that as melted lead cools the first-forming crystals contain less silver than the portion remaining liquid, and that in the usual way of working by thirds this exists to the extent that, when two thirds of a given quantity are in crystals and one third liquid, the two thirds will actually contain only half the quantity of silver that the one third or lesser quantity does. In the Rozan system, steam is used with a double purpose, one of which is mechanical and the other chemical. The mechanical effect is to boil up and violently stir the melted lead, thus preventing any setting on the surface; and this boiling of the steam through the lead as it cools causes a regular crystallization, and an easy and perfect separation of the liquid from the crystals when the proper stage is reached. The chemical effect is due to the oxidizing action of the steam on the antimony, copper, iron, arsenic, and other extraneous metals, which, being converted into oxides, are either skimmed off or carried away with the escaping steam, and afterward allowed to settle in the condensers. This chemical action fulfills so good a purpose that the Spanish rich silver leads are desilverized without any previous calcination, and an unusually pure market lead is produced from them. Even in the case of Greek lead, only a partial calcination is required, as experience shows that a portion of antimony, equal to about ½ per cent, existing in the original silver lead, is an advantage, inasmuch as this small quantity of antimony has a remarkable effect in reducing the quantity of lead oxides formed. Without absolute proof, it may be premature to speak of any chemical action, as it is possible the whole of the oxidation is due to the mechanical exposure of the molten impure lead to the influence of the atmosphere, assisted by the air carried into the pot by the steam; but I am strongly of opinion that a chemical action actually takes place. The leads most suitable for the steam process are of a similar class to the already-mentioned Spanish rich silver leads, containing from ½ to ¾ per cent of foreign metals, of which antimony generally constitutes fully two thirds of the quantity. In the old Pattinson process, those extraneous metals are eliminated as far as possible by a previous calcination, the charges sometimes requiring forty-eight hours in the calcining furnace in order to fit them for the pots. In the Rozan system, however, this calcination is dispensed with, and the lead as it comes out of the smelting furnaces is used directly by the desilverizing apparatus.

Having described the working of the plant, I will put before you as shortly as I can the advantages and defects of the Rozan as compared with the Pattinson system, as carried out in our works for a great number of years. The advantages the Rozan system possesses are:

1. The entire saving of the cost of calcining all ordinarily hard leads, and, in the case of extra hard leads, such as Greek lead, a very large saving.
2. A cost for labor not exceeding one fifth.
3. A cost for fuel of about two fifths.
4. A saving of one third in the oxides produced, which advantage any lead manufacturer will fully appreciate.

Its defects are:

1. A large capital outlay.
2. A constant expense in repairs and renewals.

The repairs are only a small matter, but until lately the cost of renewal of pots was a very serious and heavy item: it is one which by observation and care we have been able very considerably to reduce. In 1876, pots cost us over 3s. per ton of market lead; in 1877, it came to 2s. 2d.; and this year, so far, the cost has been further reduced to 1s. 4d. per ton.

On the whole, the advantages are very considerably greater than the defects of the Rozan system; and I can confidently assert that our firm has every reason to be satisfied with having adopted it.

The following is a table showing silver assays of twelve crystallizings taken from an average of 350 operations:

Ounces per ton of lead.

570	315	202	112½	62	33¾	19⅛	10	5	2¼	1¼	14 dwts.

INSTITUTION OF MECHANICAL ENGINEERS.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: I am instructed by the Research Committee of the Institution to bring to your notice the three subjects (as below) which they have selected for first investigation; and to inquire whether you have any information bearing on all or any of them, which you would be willing to communicate: for example, records of unpublished experiments, references to authorities on the question, copies of books or papers in which it is treated, etc.

The Committee would be glad to receive such information in full detail and at the earliest convenient date; and it will be suitably acknowledged in their report.

Subject A. The Hardening, Tempering, and Annealing of Steel.

Subject B. The best form of Riveted Joints to resist strain, in iron or steel, or in combination.

Subject C. Friction at High Velocities, specially with reference to friction of bearings and pivots, friction of brakes, etc.

Yours truly, WALTER R. BROWNE, Secretary.

10 VICTORIA CHAMBERS, VICTORIA STREET,
WESTMINSTER, S. W., March, 1879.

* A Paper read before the Newcastle Chemical Society, at its General Meeting, November 28th, 1878.

THE GOLD MINING DISTRICT OF DAHLONEGA, GA.

By J. B. Mackintosh, M.E.

In the small area of country represented in the accompanying map are collected some of the richest deposits of gold in Northern Georgia. The general course of the gold-bearing veins through the Southern States is northeast and southwest. Just at this part of the belt, the gold deposits are found over a greater breadth of country, and at the same time they are richer than at other parts yet explored.

The conformation of the country is very favorable to economic mining; there is abundance of water and plenty of wood. The uneven nature of the surface has the effect that all the gold ores so far worked are decomposed, and no deep mining has been, or probably will be, undertaken for many years to come.

It will be noticed how the mills are situated. To the northwest of the belt on which they lie there is but little gold found; while to the southeast it is obtained by panning for many miles. There are a few sulphuret veins uncovered which are known to run very rich in gold; but there are no appliances for treating these ores, and so they are left untouched for the present.

The diches, which supply water to the different mining companies, are very extensive pieces of engineering. The two principal of these are the Hand ditch, with its connections to the Findley and Pigeon Roost mines, and the Dahlonega Gold Mining Company's ditch. The first of these is over twenty miles in length, from its source at the Yahoola River to the town of Dahlonega, where it branches into three divisions, the first of 1½ miles in length to the Hand and Benning mines, the second 2½ miles to the Findley mine, and the third the Pigeon Roost extension of 7 miles. The Dahlonega Company's ditch is about seventeen miles long. Besides these and the minor ditches shown on the map, there are many others actually in use; for whenever a miner is working a piece of ground, he will, without any survey, except that which he makes by simply inspecting the land, select a favorable point on the course of a creek, and by damming it up, will divert the water into a ditch, extending it till he arrives at the point at which the water is to be used. These impromptu ditches are very quickly constructed for short distances and small amounts of water, and are abandoned as soon as the place is worked out. The result is, that there are dry ditches running in all directions from the various water-courses.

Contrasted with this practical method of ditch-making may be mentioned the way a ditch about one quarter of a mile in length was made in another of the gold mining counties of Georgia. The gentleman in charge of the works had run a line of levels for the proposed course of the ditch, which was to turn the water of a creek into a reservoir to furnish power to run the mill. The ditch had a slight grade; but when the water was turned on, it was found that the grade was the wrong way, and in fact that the water would not run up-hill. This mistake was, however, soon rectified, and now it furnishes enough water at a head of 23 feet to produce 130 horse-power whenever it may be necessary.

The small placer miners think nothing of carrying a ditch across the roads, either by excavating a channel, or by throwing up an embankment. The latter plan involves less initial labor, but eventually requires much more, as the embankment is broken down every time a vehicle passes over it.

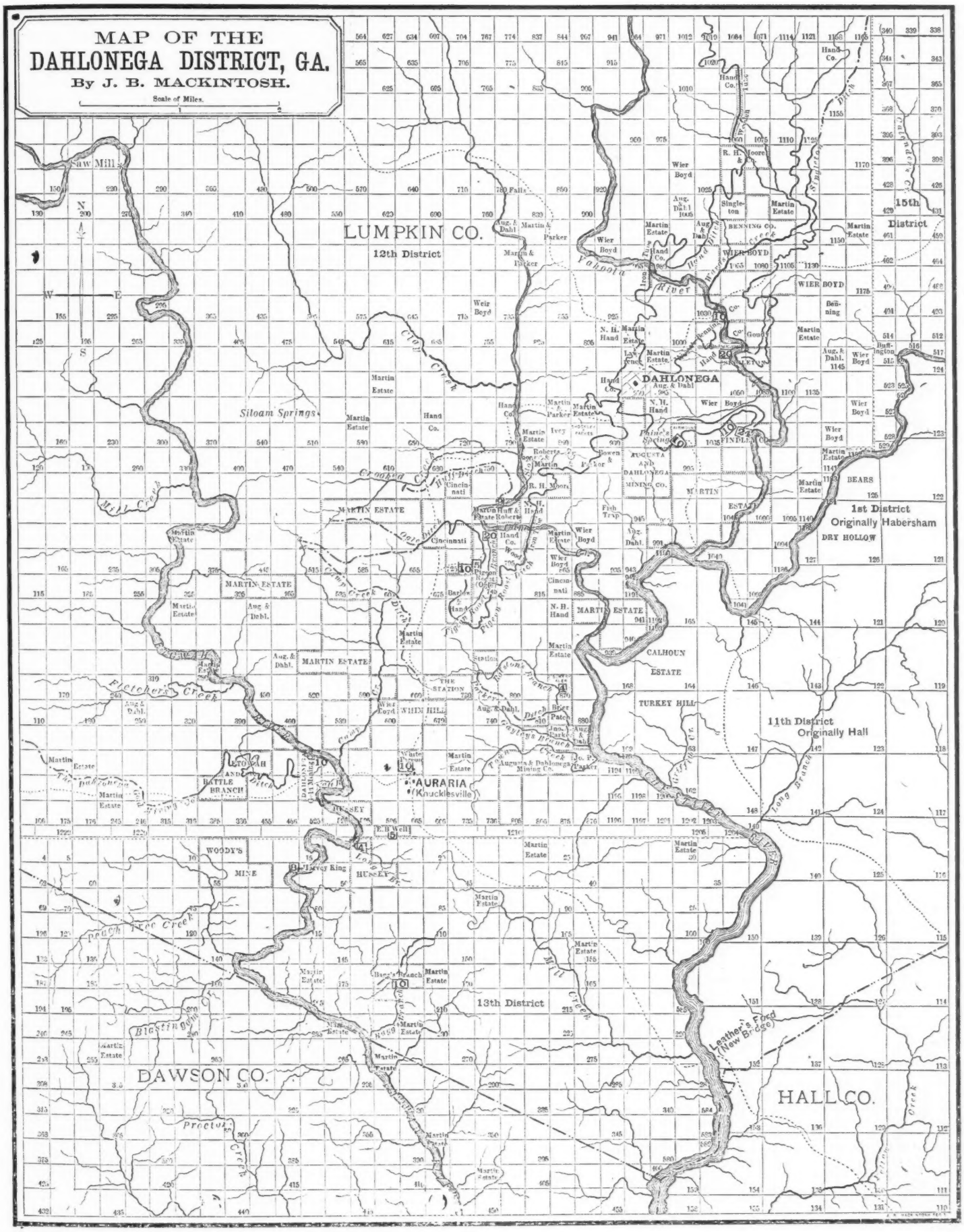
One very great drawback to the mining population of Dahlonega is, that they have to go three miles out of town in order to get a drink of whisky. The majority of the whisky-drinkers also have a great objection to paying the government duty. The general opinion is, that the private article is of much better flavor than the government spirit, besides being considerably less expensive.

On one occasion, while a stamp-mill was being erected, a man got permission from the somewhat unsophisticated owners of the property to sell cider to the workmen. It was a hot day, and the keg was being rapidly sampled; but the more that was taken the less able were the workmen to attend their duty; the result being that only half a day's work was accomplished that day, and in the future no one was allowed to supply the miners with refreshments during work-hours.

The principal trouble with people thinking to start mining in this gold field is, that they do not begin with sufficient cash in hand. As soon, therefore, as they are in proper trim for work, their capital is exhausted, and they find themselves crippled, with no other resource than to sell out to the highest bidder. In consequence of experiences leading to this conclusion, the different smaller mining companies are endeavoring to consolidate their companies and work them in common. At present, the only stock companies represented in the New York market are the Findley and Dahlonega, the former of which, under the vigorous and successful management of Mr. N. H. Hand, has retrieved the reputation of the Georgia mines. There are many other mines as rich as the Findley, and there is no reason why, under like superintendence, they should not be successful. Mr. S. L. M. Barlow, of New York, has, in partnership with Mr. N. H. Hand, recently begun the development of his property. The Pigeon Roost extension of the Hand ditch was built for this purpose. Mr. Hand has full charge of the operations, and has built a 20-stamp mill on Cane Creek; this is run by a turbine operated by the waters of the creek, which have been turned into a new channel from some distance above the mill. The ores found on this property are among the richest in the whole belt.

In the immediate neighborhood of this property are grouped several other mills. The Cincinnati is a steam mill, and has been giving very good returns since it has been in operation. The Ogle is a small mill run by a water-wheel, but it works on rich ores; the same may be said of the adjoining properties. All these properties lack sufficient water to carry on their mining operations steadily; and if that is once secured, there is no doubt but that they will pay handsome dividends. They are operated on too small a scale to yield the best results.

The White Pigeon or Davis and the Bagg's Branch mines labor under the disadvantage of being obliged to pump up all the water which they use to flood their ores to the mills to a sufficient elevation, which, in the other properties, is secured by the use of ditches. In the case of Bagg's Branch, the water is raised to the top of a hill 170 feet high. It will be readily seen that this can not be an economical mode of working these mines. As at present they are in the hands of private companies, who


MAP OF THE
DAHLONEGA DISTRICT, GA.
By J. B. MACKINTOSH.
Scale of Miles.
LUMPKIN CO.
12th District
DAHLONEGA
Siloam Springs
MARTIN ESTATE
CALHOUN ESTATE
TURKEY HILL
AURARIA (Knucklesville)
WOODY'S MINE
HUSSEY
WHITE HILL
BATTLE BRANCH
DAWSON CO.
HALL CO.
15th District
1st District
Originally Habersham
DRY HOLLOW
11th District
Originally Hall
13th District
Leather's Ford (New Bridge)
Saw Mill
Falls
Yahoola River
Chestatee River
Mill Creek
Crooked Creek
Fletcher's Creek
Proctor Creek
Big String
Long Branch
Martin Estate
Hand Co.
Weir Boyd
Cincinnati
Aug. & Dahl.
Singleton
Benning
Gould
Buffington
Findley
Bears

are not able to undertake any expensive developments, they are not giving as good returns as they would if taken in hand by larger companies of capitalists, who were able and willing to undertake such an enterprise as the Hand or Dahlonega Company's ditches. This would need no small sum of money. As much as $500,000 has been spent from first to last in the construction of the Hand ditch and its branches.

In conclusion, I feel it only right to mention the deep sense of obligation that I feel toward the many gentlemen of Dahlonega who have facilitated the construction of the map by all the means in their power, and without whose help it would not have been possible to make it.

ADVICE TO INVESTORS IN COLORADO.

A valuable paper from Mr. L. F. Olmstead, of Georgetown, a gentleman who is held in high estimation in Colorado, was presented at the meeting of the Bullion Club on Thursday night. We regret that our limited space will not permit us to publish it in full. We shall, however, publish some of his more important hints. After calling attention to the field for profitable investment in Clear Creek County, he says: The way of a mining company on the Stock Board often disturbs the minds of Western men. If a company listed on the New York Board is advertised as selling thousands of shares weekly, is given glowing panegyrics in leading Eastern papers, and claims the attention of the public because it has declared in dividends several times the whole product of the mine, unsophisticated Coloradoans are almost tempted to disbelieve their eyesight and senses. Do the purchasers of said stock have or care to have any opportunity of examining the books of said company, or do they possess a sublime faith in the company's managers? If another company persists in declaring dividends when the few men employed barely earn wages, where do those dividends come from? If another company is producing largely, making immense profits, selling stock, but assessing its stockholders, who are refused access to its books, should not the Stock Board examine into the matter, and at least attempt to punish that company by expulsion, even if it be a "powerful corporation"? If another company, hopelessly involved in debt, with three or four liens hanging over it and not a pound of ore in sight in its mine, is selling stock at a lively rate in New York, have not the people of Colorado a right to smile audibly at that Stock Board which allows barefaced swindles to be perpetrated on a credulous public? It is rather curious, also, why, when a small concise statement of a mine's monthly expenses and product will cause that mine's shares to be sold rapidly at a good price, so many companies who are soliciting the favor of the public should neglect to publish such balance-sheets.

It is strange, also, why some men will readily invest, without any investigation, in an enterprise backed up by a glowing prospectus which contains the names of persons prominent in civil, military, clerical, and political circles.

Of Silver Cliff it may be said that, though lately discovered, five to eight tons of ore of a fair grade are being raised daily, numerous rich strikes are announced, parties interested there are loud in its praises, and its possibilities are great. The formation of its mineral deposits is so unlike any thing hitherto known in the history of mining that no conjecture can be made as to their value or permanency. Geologists and scientific men have several opposing theories, but practical men are waiting to see the result of deep shafts.

The Bassick mine, near Rosita, shows a wonderful body of rich ore, also in a formation that is puzzling the scientists.

Leadville deserves special mention; for at present it is attracting the attention of all who are interested in mining, and it has caused Colorado to be advertised magnificently over the civilized world. The markets for silver and lead observe its progress with care and base their estimates on its probable production. The magnitude and richness of its ore-deposits, the ease of mining and smelting, and the numerous chances already grasped for attaining fame and fortune, have caused such a craze about Leadville, that it is no wonder that many sensible men have been influenced by the prevailing excitement.

Ten Mile, east of Leadville the distance of its name, shares the glory of this last rush. A wagon-road over the Snowy Range from Georgetown to Leadville is being rapidly constructed, and in two weeks the bulk of travel and freight over the U. P. and K. P. RR.s will be turned to this route, as the distance by stage is less than by any other. Leadville produced more silver last year than this county; is raising more ore to-day; has a population of 12,000 where a year ago there were not 1200; thousands of men, poor and rich, are flocking thither; three railroads are being extended to grasp its immense traffic; the sinking of shafts and the work of development on its mines go on by night and day; business in all branches is highly prosperous; and if the mines hold out, Leadville, within one year, will become the largest and wealthiest city between St. Louis and San Francisco. Conceding all praise to the men who have opened up this vast field for labor and capital, and who have placed millions in circulation, being, moreover, interested pecuniarily in the camp, and heartily desiring its success, the writer wishes to warn your members against investments in Leadville or in Leadville mining stocks. With no desire to exalt this county at the expense of Leadville or the other new camps mentioned above, he simply asks you to postpone judgment, to be carried away by no rush or excitement, but to investigate carefully any and every mine or mining enterprise offered, and to form your opinion with sound common sense, thereby saving money. The sight of a vein of carbonates, thirty-six feet high, worth $200 to $800 per ton, astounds both the business man and the miner; there *are* "millions in it;" $25,000 may be extracted in one day; but *how long will this last?* Many shafts have been sunk outside of the lines of the 300 × 1500 feet claims from which so much ore is coming; take the trouble to find out what these shafts have proved, as to the extent and richness of these great bonanzas. A flat or saucer-shaped deposit necessarily has its limits and its boundaries: a *vertical, true fissure-vein has none* on its downward course.

While a mining camp is blazing with excitement, cool and careful business men retain their composure and consider the end.

As further reasons for an adverse judgment on Leadville, the following are offered:

At present, the excitement is so great, mining or real estate is held at exorbitant rates. It is a good time to sell, not to buy. The shrewdest men, the best advised in mining and milling ore wish to sell out for cash while they are now realizing incomes many times greater than any interest on the price at which they bought their property. They see that the ebb-tide period is approaching.

The largest and best mines have in their explorations found lean ore, and the extremities of their ore deposits. The mining claims are generally restricted to 300 × 1500 feet.

Supposing all this ground contained paying ore, it would soon be worked out. All this ground does not contain paying ore. For one mine showing "pay," two hundred shafts are being sunk without pay. Several California mining capitalists and experts, whose judgment of mines can not be disputed, have lately visited Leadville, Silver Cliff, and Alamosa. They have not invested in either, for they doubted the permanency of the deposits. Many old Georgetown miners are returning here from the new camp, and, when asked their opinion of Leadville, shake their heads and say: "Not only the bottom but the sides have been dropped out of Leadville." The Denver *Tribune*, the leading newspaper of Denver, which has always tried to do exact justice to Colorado mining camps, has, in its issue of March 30th, a column-and-a-half letter from a correspondent at Leadville, highly eulogistic of the place and its mines, from which article the following extract is taken:

"There has been a perceptible falling off in the amount of ore mined during the past week from what has been taken out in previous weeks. The low price of silver and lead, with the exorbitant rates charged for freight, have served to make the mill men less desirous to push the reduction of ore to the full limit of their works. Numbers of men have been discharged from the smelting works since my last, and unless the prices for bullion advance, there will be considerably less ore taken out next week than has been mined during the present."

The writer desires to make a comment that the reduction of the price of bullion (one cent per pound) had nothing at all to do with the falling off in the amount of ore mined.

According to the theory of one of the oldest citizens of Leadville, a practical mineralogist, and a man who owns $35,000 worth of real estate in the town, there are, in that mining district, three flat or nearly horizontal deposits of ore; one on Carbonate Hill, one on Fryer Hill, and one on the second belt above these; neither contain more than 600 × 1500 feet of paying ground, probably less. Ten Mile, the suburb, has produced, during the last sixty days, one ton of ore per day, worth $150 to $250 per ton. Population, about 3000. What Ten Mile may develop, an overruling Providence only knows. Leadville will last as a mining town on account of the need of exhausting its excellent mineral deposits, and by reason of the discovery of new mines, silver and gold, near by; but as the future great city of Colorado, or as a first-class mining camp, it will be neither one nor the other.

To conclude, a true fissure-vein, containing good ore, will last many lifetimes; a mine of another character is worth the value of one half the ore in sight.

PROSPECTING COMPANIES.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: The very practical action you have taken to assist the development of the vast and important mining interests of this country, by your outspoken denunciation of fraudulent attempts upon the pockets of capitalists, induces me to offer the following suggestion for more effectually protecting the interest, not only of the capitalist, but also of the legitimate mining community, which you have so well inaugurated in your journal. The great drawback to the investment of capital in this direction is the fear of fraud or of sanguine over-estimate of the value of this class of property. Prospectors, as a rule, are more sanguine than wealthy, and, when they strike a promising location, have either to submit to the conditions (generally extortionate) of local capitalists, or lose the value of their discovery from want of means to develop it. What I would throw out as a suggestion is, whether the true interest of this important industry would not be advanced by the formation of a finance company which would make a business of promoting companies to develop properties of this class. Of course, it is clear that in this, as in every other case, fidelity and integrity are the keystones to success in obtaining the confidence of the public, who, seeing upon the prospectus trusted names as promoters, would know that the property had been thoroughly investigated and put upon the market on fair and reasonable terms, for which service the promoting company should receive a certain percentage.

I refrain from occupying your space in speaking of details which will present themselves to abler minds than mine; but it is too much the custom for men, even of high integrity, to allow their names to be used in connection with corporations of which they know little or nothing, for a consideration of stock, which they relegate to their strong-box, to await developments. Many of them, I feel sure, would not allow this use of their names were they to reflect upon the moral responsibility involved. I believe some such legitimate "go-between" would tend to put mining stocks on a more legitimate basis, and yet leave a sufficiency of that glorious uncertainty so nearly akin to gambling (the attraction which seems more or less a part of our natures), without the fear of fraud or of misrepresentation. Respectfully, G. J. F.

March 27, 1879.

BESSEMERING COPPER MATTE.

William L. Raht, of Baltimore, Maryland, received Letters-Patent, No. 57,376, dated August 21st, 1866, for improvement in treating metalliferous ores; from which the following are extracts:

"This invention relates to a new process for treating matte or regulus run from metalliferous ores, containing sulphur, arsenic, or antimony, and the invention consists in forcing atmospheric air, or other gas, through the liquid fused matte obtained from such ores in such a manner that by such air or gases the sulphur, arsenic, or antimony contained in the matte is vaporized and a pure metal is obtained.

"In the usual process of treating ores of copper, nickel, lead, silver, gold, etc.—in short, all metalliferous ores containing sulphur, arsenic, or

antimony—the surface only of the melted mass is exposed to the air or other gases, and it is obviously very difficult, and, in fact, impossible to reach by this process all the sulphur, arsenic, or antimony which may be mixed with said melted mass.

"In my process this difficulty is obviated. I force the air or gases through the melted mass in a similar manner to Bessemer's process in treating iron, and thereby said air or gases are disseminated throughout the entire mass, and every particle of sulphur, arsenic, or antimony is reached and expelled.

"I do not claim broadly as my invention to pass air or gases through metalliferous ores when the same are in a melted state, as this process is described in Bessemer's patents for treating iron ore; but,

"What I claim as new, and desire to secure by letters-patent, is:

"The within-described process of expelling from metalliferous ores sulphur, arsenic, or antimony, by treating the matte or regulus run from such ores in the manner set forth.

"The above specification of my invention, signed by me this 3d day of March, 1866. WILLIAM L. RAHT."

SAN JUAN SILVER MINES.

Special Correspondence of the Engineering and Mining Journal.

On the afternoon of March 10th I proposed to a brother miner that we should walk over and see the new bonanza. To this he agreed, and, leaving the main street, in about fifteen minutes we were at the Trout; and just a few feet above the tunnel entrance, on a point or bluff of rocks which overhangs the creek, we found them at work simply quarrying out big blocks of almost solid gray copper. The pay-streak seemed to be about 18 inches wide, and where they had taken it off the wall of quartzite on the west side, the surface of the rock was covered with the beautiful bright blue stains already referred to. What I saw them taking out would require hardly any sorting, being nearly solid gray copper, and one of the blocks that they took out just as I got there would weigh very closely on 200 pounds. The one on view at the post-office is valued at $50, and will be sent shortly, I believe, to the owners, living in Cleveland, O. Would you believe it possible that this rich body of ore has been allowed to lie so long undiscovered, situated, as it is, at "grass-roots," and only about 20 feet above the entrance to the first level? Wouldn't you suppose that many lessees and workers would have had the gumption to strip off the foot or so of soil and prospect the outcrop there with a pick or a shot? About 30 feet east of the open cut, they were stripping the soil off the rocks, and had just exposed a similar-looking vein to the other—most probably the extension of the Fisherman on that side the creek.

We now went a little further up the creek to have a look at the "Gray Copper," discovered at the same time as the others, and same owners. Found them at work running a cross-cut to tap the vein at an angle of about 30 degrees, the tunnel being in about forty feet and having probably about fifteen feet more to run. On the opposite side of the creek is the Ophir, discovered and staked from the creek 1500 feet in a northwesterly direction, a few weeks after the others, but by different parties. Here there was somewhat of a dispute between the two parties of owners, that, having staked the Ophir from the water's edge up, part of their claim was on Trout surface ground. However, they moved their stakes a little higher up the bank, but commenced their tunnel at the creek, still on Trout ground, this being the most favorable site for an adit. No objection was made to this, and they ran upward of 100 feet, most of the way in good ore, which was piled up on the dump and afterward washed away by the spring freshet. Having been very quiet about the richness of their ore, and having done the amount of work required by law, they went to work and got a United States patent for the property: this arrived a few days ago. The Trout and the Fisherman will probably be surveyed for a patent this spring.

In the half-mile of Cañon Creek which takes in these mines, there are a dozen or so hot springs, which flow into the creek; and these, and others which abound on the town site of Ouray, serve to keep the Uncompahgre River without a film of ice in the severest weather. They, of course, are an incalculable blessing to the dwellers in our camp. Bath-houses have been erected over three of the hot springs in town. One of these, owned by Mr. Buchanan, is worthy of mention. There is a neat frame building, with two baths, the dimensions being, as nearly as I can remember, about ten feet long by four feet wide and four feet deep each. The waters are pleasantly hot. Not having an analysis of them, I can not say what medicated matter they contain, except sulphur and soda; but the waters are the "dead medicine" for rheumatism, it is said, and have a wonderfully soothing effect. There is a neat little dressing-room to each bath, not to mention a stove, boot-jack, comb, looking-glass, and other metropolitan refinements. All this for 25 cents a bath. You may imagine what a treat it is, after coming down from Imogene Basin, nine miles, over winter's snow, or in summer's sun, to relax the muscles and soothe the nerves by a plunge in these delightful waters.

Mr. Buchanan and his "gude wife" live on the spot, and keep every thing in "apple-pie order," besides raising no end of "garden-sass" on the sunny hillside above the springs. But I'm "off the track." The springs at the mines in Cañon Creek contain, I think, oxide of iron and the alkalies, and one in particular tastes as if a keg of nails had lain in it for years—a fine tonic, I should think; but we don't need tonics here. One of these springs is situated just at the mouth of the lower tunnel on the Trout; and when the Messrs. Reed were working the Fisherman, they had a tent over it, and found the hot water particularly useful for washing dishes and themselves. No one appreciates a hot bath more than a miner, especially when it bubbles up fresh and pure from the rock itself.

The Norfolk and Ouray Smelting Company, who purchased the "Mineral Farm," have taken out 500 tons of ore, and the little development already done shows it to be all the bonanza we imagined, and more too. As I said before, it was at first supposed that there would be enough galena to smelt the other ores; but it "played out" at an average depth of two feet, and underneath it the rich gray copper ore came in. So, to meet the difficulty of having so much "dry ore" and so little lead, Superintendent Corbett has just purchased concentrating machinery from Fraser & Chalmers, of Chicago—stamps and Frue Vanner. I verily believe that if he has ordinary luck, he will realize the amount paid for the "Farm" in six months after he gets his concentrator running.

Since writing the above, I have ascertained from Mr. Siddons, cashier of the Miners' and Merchants' Bank here, that he shipped out a ton of the above Trout ore which ran 400 ounces; and two other lots shipped to Lake City for treatment, and sampled and assayed here, gave, first class, 329 ounces, and second class, 246 ounces. Our bank here is a good one, and Mr. Siddons is doing all he can to help us. He will either buy our ores or ship them out for treatment, giving us 75 per cent in advance, if we need it; and where we have to pay such high rates for milling at local reduction works, this is a great help. W. W.

OURAY, March 24.

PROGRESS IN SCIENCE AND THE ARTS.

General Science.

Cremation is frowned upon by that eminent medical authority, the London *Lancet*, but upon what would appear to be purely sentimental grounds. It questions, for example, whether time will ever so completely obliterate the "sense of decency" in the people of England that the notion of burning the dead will be tolerated, and pronounces the idea of cremation to be "revolting."

Scientific Brevities.—Beccari has found in the virgin forests of Sumatra a flower surpassing all others in size, beauty, and perfume. The diameter of this flower is as much as 83 centimeters (32$\frac{11}{16}$ inches).——Dr. Palli, a distinguished Italian *savant*, advances the novel doctrine that the human organism undergoes, in the course of its existence, a slow oxidation, on the completion of which death ensues. This operation should take, accidents excepted, about 100 years. To counteract this devitalizing action, he recommends that a few grams of a sulphite be taken every morning in pure water.

Honors to American Science.—The Geological Society of London has awarded the Bigsby gold medal, in its gift, to Prof. E. D. Cope, in recognition of his services to the science of paleontology.

The National Museum.—The last Congress passed a bill appropriating $250,000 for the erection of a fire-proof building for the National Museum, adjoining the Smithsonian Institution

Electric Light Items.—The continued use of the electric light in the reading-room of the British Museum has proved satisfactory, and its use will be continued.——The Chamber of Commerce of the port of Havre has become so well satisfied of the utility of its experimental trials of the electric light that ten lights have been ordered to be established at the outer port.——The electric light experiment at the famous Billingsgate market has been found to cost £4 per night, as against £2 10s. by gas. The relative quantities of light are not given.——The Commission of the Paris Municipal Council, reporting upon the subject of proposals for electric lighting of the streets of that city, states, with reference to the Jablochkoff candles, that the precautions against various causes of their extinction are by no means perfect. One of the candles, as judged from their practical operation, gave as much light (with shade on) as seven gas-jets of 7·2 candle-power—a performance much below the original estimate. The cost has been 73 centimes (about 14 cents) per candle per hour.

Switzerland is about to introduce, in connection with its meteorological stations, a signal service for the dissemination of information regarding the probable state of the weather, to give storm warnings, etc., upon the system so admirably developed in this country. For this purpose the territory will be divided into eight regions, each having its central station. The state of the weather throughout Europe, received at these stations, will be graphically represented on maps which will be exposed in the towns for public use. The system is said to be at work in Zurich and Berne, and the prognostics are correct in eight cases out of ten. Our informant is London *Nature*.

The Hosmer Magnetic Motor, of which such extraordinary accounts were heralded in the public press a few months ago, turns out to be a false alarm. The inventress is reputed to have found that the thing wouldn't work, and has abandoned the field.

The Observatories on the Puy de Dôme and Pic du Midi have rendered such important service to meteorological science that they are about to be supplemented by two others, one on the summit of Mont Ventoux (south of France) and the other on the summit of Ballon de Servance (Vosges).

The Yellowish Deposit that the rain lately brought down in the interior of Pennsylvania, and which the newspapers generally pronounced to be sulphur, has been ascertained to have been nothing more serious than the pollen of the Jersey pines. The good people of Reading and Allentown, who may have been needlessly alarmed at what must have recalled the story of an ancient and very unpleasant visitation of brimstone, are, no doubt, correspondingly relieved.

Mining, Metallurgy, and Geology.

A Substitute for Gunpowder in Coal Mining.—The *English Mechanic*, alluding to the fact that the firing of shots in mines is a prolific cause of the terrible explosions of fire-damp that so frequently are attended with lamentable loss of life, remarks that there is some probability that before long the use of gunpowder for blasting coal, at all events in fiery mines, will either be prohibited altogether, or will only be permitted under special conditions and circumstances that will tend to its gradual disuse. These remarks of our contemporary are made apropos of the reading of a paper before a late meeting of the Manchester Geological Society, by the Chief Inspector of Mines, Mr. Garforth, of Dukinfield, in which he described a method of employing compressed air as a substitute for gunpowder and other explosives in breaking down the coal from the face of the workings. For this purpose, small portable machines are constructed by which two men can compress air to 946 atmospheres (14,200 pounds). The compressed air is conveyed from this machine through wrought-iron pipes to a cast-iron "cartridge" 12 inches long, placed in a suitable hole, drilled in the coal and stemmed tight. The strength of this "cartridge" is gauged so that it shall burst when something less than the full power the machine is capable of exerting has been reached, and the coal is broken

down by the enormous expansive power of the compressed air. At an experimental trial recently made of the capabilities of this system at the Bower Colliery, in a seam of very hard coal 5 feet thick, the coal was undercut to a depth of 4 ft. 6 in., and, 7 ft. from the cut end, a hole was drilled 39½ in. deep, into which one of the above-described cast-iron cartridges was placed, stemmed tight. Communication having been established by wrought-iron pipes with the compressor, the cartridge burst at a pressure of 9950 pounds, and resulted in bringing down 5 or 6 tons of coal in good condition. This and other experimental trials, our contemporary holds, have established the practical utility of the system. The reading of the paper attracted much interest, and, while it met with some criticism, the weight of opinion of a crowded meeting of mining engineers was evidently in its favor. For the full mechanical details of Mr. Garforth's system, we refer our readers to our authority above quoted, current issue.

Virginia Bessemer Ores.—Apropos of the late advances in the price of Lake Superior Bessemer ore, and the large importations of foreign ore by Eastern furnace men, Mr. A. Earnshaw writes, advising the Pittsburg steel manufacturers to turn their attention to the ore supplies of New River, Va., which, by the expenditure of less than half a million dollars in the construction of a narrow-gauge road connecting with the C. & O. RR., would insure to Pittsburg and vicinity all the Bessemer ore they might require, and of a quality very superior to the general run of Lake Superior Bessemer ore, and decidedly better than the best.

An Old and Abandoned Nickel Mine is reported to have been discovered in the town of Dracut (near Lowell), Mass. It is supposed to have been originally opened some 200 years ago, the first workers having been deceived by the resemblance of the ores to silver. The old shaft was 43 feet in depth. This has been sunk to 61 feet, and, having found paying ore, a company to work the mine is said to have been formed.

New Caledonia, lately made conspicuous by reason of the discovery and working of the rich nickel ores, the product of which attracted so much attention at the late Paris Exhibition, is pronounced by M. Garnier to be very rich likewise in gold and copper.

Mineralogical.—Pisani communicates to the Academy of Sciences the fact that wagnerite, a fluorescent phosphate of magnesia, originally found at Werfen (Salzburg), is identical with the kjerulfine from Bamle (Norway). The same author remarks that the Russian retinite was formerly mistaken for a manganiferous garnet.

The Extreme Slowness with which the Diffusion of liquids takes place was lately illustrated by the following simple but striking experiment in the course of a lecture at the Royal Institution, by Sir William Thompson. He had prepared, nine days previously, a number of glass tubes containing several liquids carefully poured in, one upon the other, so as to lie completely stratified one above the other. The line of demarkation between these several liquids was carefully registered, so that the amount of diffusion in the interval of nine days could be accurately noted. Solutions of the sulphate of copper, of common salt, and colored alcohol were used for this purpose; and the diffusion had not extended beyond two or three inches during the interval named. The lecturer affirmed that a tube 30 feet in length had been prepared in a manner similar to the above several years ago in Glasgow, and from the rate of diffusion which it manifested, the conclusion was warranted that it would require a thousand years for the complete interfusion of the two liquids. These observations are important, both from the high authority from which they emanate, and because they do not coincide with opinions generally entertained on the subject.

American Petroleum Abroad.—The rigor with which foreign countries maintain their inspection laws regulating the admission of petroleum into their ports, with the laudable object of excluding such as are of low grade and explosive, is well illustrated by the reception of a dispatch by the Department of State, from Consul Weaver, of Antwerp, calling attention to the growing and serious dissatisfaction felt in Europe respecting the quality of the refined petroleum lately shipped from this country, and containing the intimation that, unless some satisfactory explanation thereof be given, the government (Belgium) will be obliged to take measures to restrict the importation, or to prohibit it altogether unless its quality be improved. The damage that would thus be inflicted upon the American petroleum trade would be disastrous in the extreme, and, appreciating this fact, it is understood that an expert representing one of the largest American refining companies was sent to Europe to investigate the cause of complaint. He is understood to have reported that the difficulties complained of do not lie in the imperfect refining of the oils, "but from the fact that the oil now obtained, particularly in the Bradford district, differs materially in its characteristics from that heretofore exported, especially in specific gravity, and requires different wicks and burners. He affirms that the oil now produced is no more liable to explosion than the earlier quality, and that it can not be improved by more thorough refinement without great additional cost." The Consul reports, furthermore, that a general gathering of representatives from the various European ports will shortly be had at Bremen, to discuss the questions of dissatisfaction and to decide upon such remedies as the circumstances demand; and he warns American refiners and exporters that unless steps are taken to remove the causes of dissatisfaction, they stand in danger of losing a large part of their present European trade.

This rigorous and eminently proper enforcement of the inspection laws on the part of European authorities stands out in glaring contrast with their utter neglect with us at home, where, in the face of statutes and enactments, these same dangerous petroleum products, carefully excluded from foreign ports, are indiscriminately and recklessly used to adulterate kerosene, or quite as largely dubbed with some attractive trade-name and sold pure and simple, in criminal defiance of law, and with ignorant or criminal disregard of consequences to life and property.

Dangerous Enameled Wares.—In the lately published (6th) Annual Report of the Michigan State Board of Health is an article by Mr. R. C. Kedzie, recording the results of his examination of several samples of enameled-ware cooking vessels, to ascertain the presence or absence of poisonous materials in the enamel. He reports that the samples of the so-called *granite ware* which he examined were free from any poisonous or injurious substance, and "regards the 'granite ware' as a safe material to use."

With what is known to the trade as "marbleized iron ware," his results were very different. He was enabled by the use of a very dilute (5 per cent) solution of nitric acid, heated to boiling in the vessel, allowed to stand in a warm place for 24 hours, then evaporating to dryness, and examining the portion of the residuum that dissolved in water, to obtain a precipitate which contained the equivalent of 23 grains of lead. By performing a similar experiment with vinegar (8 oz. of which were kept in a marbleized iron vessel in a warm place for 24 hours), he obtained what was equivalent to 7 grains of lead. By treating the powdered enamel suitably with more concentrated acids, he even obtained distinct evidence of the presence of arsenic. (The presence of this substance, however, it is proper to say, the author regards to be accidental and not designed.) The report concludes with the statement that "a culinary vessel that contains so much lead, and in such a state of feeble combination that 8 oz. of ordinary cider vinegar can in 24 hours dissolve from a quart basin what is equivalent to 7 grains of metallic lead, must be very unsafe for general use. I regard it (marbleized iron ware) as entirely unsafe and utterly unfit for domestic use."

Engineering, Mechanics, and Miscellaneous.

The Isthmian Canal.—It is not unlikely that the International Congress, shortly to be held in Paris to decide upon the most practicable route for a ship-canal across the American Isthmus, may select the route which our own government engineers some years ago selected as the best, after a careful study of all the surveys that had been made by American officers, namely, the Nicaragua route. It now appears that, in addition to the several routes across Darien proposed by Lieut. Wyse (to which we have several times referred), a route advocated by M. Blanchet, who is spoken of as a pupil of De Lesseps, proposes to avoid many of the engineering (tunneling) and climatic difficulties of the Darien routes by going further north, and utilizing Lake Nicaragua. This is substantially the route of Commander Lull and Engineer Menocal, of the U. S. Navy, which several years ago was selected as the most feasible by a government commission appointed by the President at the instance of Congress to examine and report upon the subject. M. Blanchet's route and plans differ only in several unimportant particulars from those of Lull and Menocal. It would prolong the lake to the adjacent valleys on either side (down the San Juan Valley on the Atlantic side and the valley of the Rio Grande on the Pacific); it would require 14 locks, would be 180 miles in length, and would cost (as per estimate) $38,000,000.

The American Rapid Telegraph Company is the title of a new organization just formed, which is affirmed by newspaper report to be the owner of valuable improvements that will enable it to materially cheapen existing telegraphic rates. One of the novel inventions it is reported to control, but of which no published description has yet appeared, is a system of transmitting a fabulous number of words per minute. The following are among the reforms which the public are promised when the new organization is once at work. (1.) Immediate dispatches (express messages) will be transmitted to all stations east of the Rocky Mountains at the uniform rate of 25 cents for 30 words. (2.) Mail messages will be dispatched within an hour, and delivered through the nearest post-office, or by messenger within two hours from time of reception, at 25 cents per 50 words. (3.) Press reports, for exclusive use of one paper, at 10 cents per 100 words. (4.) Night messages, to be delivered before 9 A.M., at 15 cents per 50 words. (5.) Stamped messages, a novel suggestion, by which, with the coöperation of the Postal Department, a postal telegraphic system, using special stamps, will enable rapid transmission of business by telegraph. The company, it is affirmed, promise within three years to telegraph ordinary business letters to and from all points of the country for 10 cents. The company, it is further affirmed, will at once set about constructing a double line of wires to connect the principal cities of the Union east of the Rocky Mountains, using the highways and post-roads, which the law of 1866 leaves them free to use.

An Exhibition of Gas Apparatus is announced as being at present in progress at Bradford, England, under the auspices of the Bradford corporation. The exhibition includes gas-stoves, gas-engines, and, in short, every thing connected with the useful applications of gas outside of the field of illumination. We have given the above information, partly because it illustrates the general interest felt in this subject abroad, and partly to give us the chance to inquire of our contemporary, the *American Gas-Light Journal*, whether its sermon to the *American Gas-Light Association* to go and do likewise, is likely to meet with a response.

The present year will complete the eighteen centuries that have elapsed since the overwhelming of the cities and country adjacent to Herculaneum and Pompeii. The directors of the excavations at Pompeii are to commemorate the event by a scientific celebration to be held on the anniversary of the event in November next, and have invited the participation of many eminent Italian archæologists.

The largest merchantman in the world, next to the Great Eastern, we are told, was lately launched by the Messrs. Elder, of Govan, Scotland. She is a screw steamer, 445 feet in length by 46 feet in breadth; tonnage, 5500, with engines of 6000 horse-power. She is called the Arizona, and was built for the Guion line of Atlantic steamers.

Boston and Philadelphia have decided against elevated railways.

The following notes are from the *Journal of the Franklin Institute:*

ELECTRICITY OF CHEMICAL PROCESSES.—F. Braun finds that the percentage of potential energy convertible into mechanical work varies inversely with the electric tension; a sudden change in the density of free electricity must be accompanied by a development of heat, even if it is not followed by any change of relative distribution; if induction-currents in a spiral excite a maximum of free electricity, half of the work is converted into heat; in currents of small intensity, if a new current is added, a greater development of heat and a less degree of polarization arise when the new current is in the same direction as the original current than when the directions are opposite.—*Ann. der Phys. u. Chem.*

SPONTANEOUS COMBUSTION.—E. Bing, of Riga, has experimented with

different materials—wadding, raw flax, hemp, the waste from silk, wool, and cotton spinning as well as sponge, and finally wood-dust as found in any cabinet-maker's shop. They were saturated with various fluids, namely, oils, fresh and in a gummy state; turpentine, petroleum, various varnishes, etc.

All the fibrous materials took fire when saturated with any of these oils or with mixtures of the same. Sponge and wood-dust, on the contrary, proved to be entirely harmless.

Combustion ensued most rapidly with 17 g. of wadding and 67 g. of a strong oil-varnish, in 34 minutes; while 200 g. of washed cotton waste, of which a portion was saturated with 750 g. of strong oil-varnish and the remainder wrapped about it, required almost 14 hours. These materials were placed in a well-sheltered spot and subjected to a heat of from 18° to 40° (C.)

Silk did not flame up, but slowly charred. Small quantities seem to take fire sooner than large.—*Wochenschrift des Ver. deutsch. Ing.*

ANALYSIS OF PEQUEST ORE AND LIMESTONE.—A correspondent of the *Bulletin of the American Iron and Steel Association*, of April 2d, says: Now that the attention of iron-masters east of the Alleghanies is being turned to the matter of obtaining good and cheap ores adapted to the manufacture of Bessemer pig-iron and spiegeleisen, I submit herewith analyses of two veins each, of iron ores, and manganiferous limestone recently discovered in the Pequest Valley, New Jersey. The analyses of the iron ores were made by Professor George H. Cook. Some ten to twelve mines, including both varieties, will be made available very soon, and within a few years a large output yearly may be looked for from this valley. The analyses are as follows:

CONSTITUENTS.	Iron ore.		Manganiferous limestone.	
	No. 1.	No. 2.	No. 1.	No. 2.
Magnetic iron ore	87·160	70·950	31·17	10·55
Oxide of manganese	·300	1·100	8·63	15·16
Phosphorus	·017	·017	Trace.	·00
Sulphur	·000	·000	Trace.	·00
Alumina		11·000	1·15	1·19
Magnesia				·75
Insoluble matter	11·000	12·000	7·25	1·25
Lime			24·10	30·95
Carbonic acid			27·70	40·15
Total	99·077	95·067	100·00	100·00
Metallic iron	63·10	51·04	22·57	7·59

THE COAL INDUSTRY OF POMEROY, OHIO.—The Pomeroy Coal Co. is at present operating four large mines.

Some of these mines have been worked for upward of forty years, and the coal has to be hauled two miles through the hill to the river. The vein is four and four and a half feet in thickness. The coal shipped is a very good steam coal. The top coal, averaging from twelve to sixteen inches, is separated from the other, which, with the slack, is sent out and consumed at the salt furnaces. There seems to be no contention here among the miners about price and measure. On the first of April and September, Mr. Horton makes a contract with his men for six months, which remains unchanged for that length of time. At present the price of mining is $2 per 100 bushels clean coal, or $1.60 for all coal as it comes from the pick. There are no scales or screening. The wagons are measured and hold twenty bushels, which they require to be filled rounding full. The men all express satisfaction at the measurement of their coal. The mines of this company are all in good condition, the roads being generally dry and the ventilation good. The Minersville mine is about a mile and a half above town, where about one hundred men are employed. The Peacock mine in the lower end of town has about 110 men at work. About a half-mile further down the river, the Dobney mine employs about 100 men, loads on the river, and furnishes fuel for two large salt furnaces. Near Middleport is the Diamond mine, where about 70 men are at work. The contract for mining expires the last of this month, but there is no reason to suppose there will be any difficulty about renewing it for another six months, and a good spring's business is anticipated.

There are numerous small mines furnishing coal for the different furnaces, in which from fifteen to twenty men are employed, who work on the basis established by the Pomeroy Coal Company. The Williams mine at Minersville, employs about 125 men, and is running steadily at present. There is also a large mine at Syracuse, five miles above here, in full operation. At Clifton, on the Virginia side of the river, the Sterling mine generally employs about 100 men; but there has been a strike there for several weeks, and their full quota has not yet resumed.

LABOR AND WAGES.

AT HOME.

SCHUYLKILL WAGES—BASIS FOR MARCH.—The following collieries were drawn to furnish prices of coal sold in March, 1879, to fix rate of wages to be paid in that month, and the following returns have been made:

Bast Colliery (P. & R. C. and I. Co.)	$1.77
Bear Run Colliery " "	1.68
Connor Colliery " "	1.64
William Penn Colliery (William Penn Coal Co.)	1.83
Eagle Colliery (Geo. W. Johns & Bro.)	1.74

The average is $1.73 2-10, and the rate of wages to be paid in March, 1879, is 25 per cent below $2.50 basis.

PHILADELPHIA, April 7.—A special dispatch from Pittsburg this afternoon says: "The strikes among the miners on the Monongahela River, the Pan Handle Railroad, and in the coke regions of Southwestern Pennsylvania, are now over, and work has been generally resumed, although there are some local questions, in consequence of which some of the works are idle. These strikes have resulted in an advance, except in the coke regions, where a demand for an advance was withdrawn. A new strike, however, is expected in the works along the line of the road."

REDUCTION OF NAILERS' WAGES.—PITTSBURG, PA., April 9.—At a meeting of the Western Nail Association, in this city, a resolution was adopted stating that the manufacturers of nails in the territory west of the Alleghany Mountains found that they were compelled to pay from 33⅓ per cent to 50 per cent more for the various classes of skilled labor than was paid by their competitors East. As this was ruining their business, they asked the skilled operatives in their factories to consent to a reduction in wages to the prices paid in the Eastern mills.

THE PRICE OF IRON BOILING.—On the first of June the contract between the manufacturers and the puddlers by which the present rate of boiling iron exists will expire, and already the matter of the renewal is being talked about. The men at present get five dollars per ton, which was allowed by manufacturers last year after much protest and discussion, and this year they are not any more willing to concede than last. It is understood that there will be a meeting of the workmen in May to determine what course shall be pursued.

ABROAD.

LONDON, April 8.—About 30,000 Durham miners are now on a strike. Many who voted against the strike will probably withdraw, and the strike become general; but the poverty and distress are already so great that it is believed they can not hold out more than one or two weeks. The iron-masters have in many instances provided extra stocks of fuel. It is believed that in the Cleveland District they can run a fortnight longer without a fresh supply.

LONDON, April 9.—A dispatch from Consett reports renewed rioting there this morning. It is feared that disorder and lawlessness will become general among the strikers, who are rendered desperate by the certainty that the strike can not succeed. There were serious riots last night at several of the colliery villages in Durham. Near Consett, sixteen policemen who were protecting non-strikers were injured and a house was wrecked.

A dispatch from Seaham, county of Durham, says that the miners in the Houghton and Seaham districts have determined to destroy the property of the owners and managers. One hundred police are stationed in Seaham Hall, and a conflict is imminent. The colliery managers are leaving or barricading their houses. Ten thousand of the Durham striking miners met to-day at Shadows-hill and voted no surrender.

Advices dated London, April 10th, state that no further disturbances have occurred among the Durham strikers.

GENERAL MINING NEWS.

ARIZONA.

THE GLOBE DISTRICT.

From the *Silver Belt* of March 21st we take the following:

"The Alice shaft is now down 113 feet, and in 4 feet 6 inches of good ore, which samples 192 ounces. A cross-cut was commenced at 110 feet, and the header is now 14 feet from the foot-wall, all the way in low-grade quartz.

"Three and one quarter tons unassorted El Capitan ore, worked at Miami mill, gave 152 ounces to the ton.

"Six thousand eight hundred and thirty-eight pounds of Pioneer South ore, worked at the Miami mill, gave a pulp assay of 335 ounces per ton.

"We learn that Cox & Coplin have bonded their group of mines to a Comstock operator at the price of $70,000.

"The Golden Eagle mine of Gold Hill is said to improve under recent work. There is a shaft 78 feet deep, and in a drift at the bottom there is a five-foot vein that prospects very well in gold.

"Rich ore, sulphurets, and glance have been struck on the hanging-wall of the Buckeye mine at the depth of 235 feet. The vein is ten feet in width, containing fair milling ore from wall to wall, with a two-foot streak of very high-grade ore. This mine is the deepest in the district.

The Chicago *Tribune* of April 2d says that "some Chicago capitalists on the Board of Trade have purchased the once famous Vulture mine, of Arizona Territory, formerly owned by Phelps & Co., of California. Stamp-mills and other works are to be erected at once. An incorporation, with $10,000,000 capital stock, has been made under the name of the Central Arizona Mining Company. The stock will be listed and sold at the New York Stock Exchange." Unfavorable reports regarding this property and its former management are afloat.

"In the Stonewall 230-foot level, good ore has been struck in the whole face of the drift.

"We hear of a valuable discovery of a gold-bearing lode south of Queen Creek, in Pioneer District. While work was being done on an old silver location, one of the workmen broke off a piece of rock from what was supposed to be quartzite reef near by, and was surprised to notice free gold. The work since done shows a vein of gold quartz 75 feet wide, which averages $26 per ton."

We can find no information in any of our exchanges regarding the Isabella Company's mine; but we understand the entire "outfit" has gone the way we predicted six months ago, and has furnished another warning against "Church" mining.

CALIFORNIA.

The Tuolumne *Independent* of March 29th says:

"Last week the Golden Rock gravel mine, on the Gravel Range, above Groveland, washed up over $3000 in retorted gold, after a run of 21 days. It is estimated about $1500 still left in the pit not yet cleaned up. At this point they had only 51 feet pressure for the hydraulic. It is estimated that, with the fall had at the point worked last year, over 200 feet, the yield would be from $15,000 to $20,000 per month. The outlook for this mine is very satisfactory.

"The new 10-stamp mill of the Gold Hunter Consolidated Mining Company started up March 21st. The claim of this company is six miles east of Summersville, on Big Cañon, and 16 miles east of Sonora. Their vein is on the same range of slate on which is situated the Ferguson mine and the celebrated Hite mine, in Mariposa County. The mine has been six years in process of development. The shaft is now down nearly 200 feet, and shows good rock in the bottom, the vein running from 18 inches to 4 feet. Some of the rock prospects big, having an abundance of free water, and, the rock being of easy extraction, they can get out and mill the ore at a very low figure: 300 tons are now on the dump, the levels are all run for stoping, and ore enough is in sight ready to break down to keep the mill employed a year. The mill contains all the modern improvements. The battery is driven by a 36½-foot iron wheel. The machinery has run right along like a clock, without change or stoppage."

The late developments in the Plumas mine are said to have put in sight a year's supply of ore. The weather has been intensely cold at the mine and the snow deep, interfering somewhat with the operations.

COLORADO.

The Boulder *News and Courier* of April 4th contains a review of the mining operations at Caribou and Nederland, from which we glean the following: The main shaft of the Caribou mine is down 770 feet, with levels both ways at regular intervals. Back stoping is being done from the 470 to the 740-foot level. There are 65 men employed. The production is about 15 tons of ore, which will average about $60 per ton without sorting. The pay-streak varies from 4 inches to 7 feet. On the 740-foot level it is nearly 15 inches wide and exceedingly rich. The mine has very complete hoisting-machinery, driven by an eighty horse-power engine. Two wood drills are being worked. The main shaft of the seven-thirty is down 275 feet, and being sunk night and day. Over 700 feet levels have been driven, and with but very little stoping the mine has made a profit. The crevice on the 235-foot level is 3 feet wide and the pay-streak varies from a few inches to several feet. This mine is producing about 30 tons of smelting ore. The main shaft of the Native Silver mine is down 335 feet. There are 18 men at work, and from 16 to 20 tons of good ore are taken out monthly, nothing less than 175-ounce

ore being shipped. The first-class ore, of which there is now some 10 inches, runs 1200 ounces; second class, 600 ounces; and third class, 200 ounces. The mine is paying from $4000 to $5000 per month. The main shaft of the No Name mine is over 500 feet deep, with levels at regular intervals the whole depth. The production of this mine has been about $500,000. The company is now in some difficulty, but negotiations are now in progress for a settlement, and it is thought operations will soon be resumed. The Poorman mine is down 208 feet, and is producing 50 tons per month, which runs from 100 to 600 ounces. The Morning Star mine is down 80 feet. The pay-streak is 4 inches wide, and sample assays give 100 ounces. The Monitor is down 240 feet, and has an ore-body over 15 feet wide, carrying 30 ounces of silver to the ton. The Fourth of July shaft is down 150 ft. There is a 25 horse-power engine and hoisting-machinery on the property. The Boulder County mine has a shaft sunk 35 feet. It is producing 2500 lbs. of smelting ore, worth $150 per ton, and 28,000 lbs. of concentrating ore daily. The Mountain Witch is down 100 feet, and has a 14-inch pay-streak of $150 ore.

The gold discoveries near Leadville, which have received considerable notice by the local press during the past two weeks, are now fully reported upon by the *Reveille*. They are near Granite, in Chaffee County, about 18 miles south of Leadville. The district is not, however, a new one; for from 1866 to 1869 a large amount of gold was produced with very imperfect milling and amalgamating processes, it being estimated that only about 40 per cent of the gold was saved. Messrs. George R. Fisher, D. Bauman, and others have taken seven mines, the principal of which is the Mamia. This mine has a vein 14 to 18 inches wide, with granite walls. Assays made of the ore run from 145 to 168 oz. gold. The ores, however, will be very difficult to work.

LEADVILLE.

The immigration to Leadville is unabated, each day bringing representatives of all portions of the country. All kinds of business are very brisk. Hay sells at $120 per ton. The Crescent is said to have been sold to New York parties for $260,000. The Flower of Edinburgh is said to have been sold to Chicago parties.

In the Sarsfield, at Ten-Mile, it is said that a vein 6½ feet in thickness has been struck, the ore assaying high.

Frisco City is the name of a new town about ten miles below Kokomo, on Ten-Mile Creek.

SILVER CLIFF.

A correspondent of the Denver *Tribune* says: "Our carbonates are still being actively worked, and as depth is gained all are improving in value. New discoveries are being made daily. Some Eastern capitalists are here arranging for both stamp-mills and a smelter. To-day our population is nearly 3000."

GUNNISON COUNTY.

A correspondent of the Denver *Tribune* says: "Coal exists in abundance, and is being used by the citizens. On Slate River, both bituminous and anthracite coal are said to exist. In Tin Cup Gulch, Taylor Park, and Quartz Creek, the prospects are good for gold. Smith's smelter, about twenty miles north of Gunnison City, will be started in May or June.

DAKOTA.

THE BLACK HILLS.

Recent information from the Cheyenne mine is of an encouraging nature. Ore assaying $45.22 in gold and $3.77 in silver has been found in quantities near the surface. The company has completed the purchase of two mills, one of 20 and the other of 10 stamps, which will give a capacity of crushing from 50 to 60 tons of ore per day.

IDAHO.

THE BONAPARTE MINE.

The Silver City *Avalanche* of March 29th says: "The property owned and controlled by this company consists of 5100 lineal feet of mining ground, situated in Bonaparte District, Alturas County, and lies six miles east of Rocky Bar, the county-seat. The mine is opened 300 feet in depth and 1300 feet in length, with tunnels, shafts, and cross-cuts, showing a vein of rich ore throughout. The vein has developed from a width of six inches at the top to four feet at the 300-foot level. The ore may be classed as zinc-argentiferous telluride of gold, chemically combined with silver, the silver forming an alloy of the gold. The principal elements mechanically combined with the gold are antimony, arsenic, zinc, tellurium, sulphur, and iron. The bullion obtained from this mine is 600 fine in gold and 600 fine in silver. Recently, advices were received from the mine that a very rich vein of gold had been struck in the 200-foot level that furnished ore that would yield from $1500 to $2500 per ton in gold and silver. The vein increased in size and richness as it was worked, and those in charge regard it as one of the richest gold mines in the country. The gentlemen who own this property are Cincinnati capitalists.

"A correspondent writing from Bonanza City remarks that that place is situated on the Yankee fork of the Salmon River. He says: 'The place is well timbered, with water in abundance. The mines prospect well in gold and silver ores, the best I have ever seen. The mines are from one to ten miles apart, and there are many of them. Every man that has a mine feels satisfied. The ore has to be roasted for silver, yet I know one man who has pounded out over $6000 in gold. There are four arastras. The owners work them for gold and save the tailings, which are very rich in silver. Some of the owners of mines send their ores to Salt Lake to be worked. I would not advise any one looking for day work to come here for another year.'"

NEVADA.

THE SUTRO TUNNEL COMPROMISE.

Following is the full text of the contract recently entered into between the Sutro Tunnel Company and the various mining companies of the main Comstock lode:

"Article 1 of the agreement declares that the terms of the original agreement have been complied with by each party.

"Article 2 provides that the main tunnel is considered as constructed according to the terms of the original agreement, but provides for the construction of a covered drain to carry off all water of whatever temperature within ninety days.

"Article 3 provides that until the end of the ninety days no water shall be discharged into the tunnel, but that after that period, or sooner if the drain is ready, the mines shall be at liberty to pump any water into the tunnel, including water used in the mines for propelling power.

"Article 4 provides for the construction of lateral tunnels—one to the north, running first to about one hundred feet west of the C. & C. shaft, thence to about one hundred feet east of the Sierra Nevada shaft, and thence to about five hundred feet east of the Utah shaft. The one to the south shall begin at the Julia shaft, which is already connected with the main tunnel, and run to about eighty feet east of the Yellow Jacket shaft, and thence to about two hundred feet west of the new Overman shaft. These lateral tunnels are to be begun within ninety days, to be well constructed, eight feet wide by seven feet high, and to be pushed ahead with due diligence.

"Article 5 makes provision for deflecting from the regular course of the lateral tunnels in case unfavorable ground is encountered.

"Article 6 sets forth that the mining companies agree to advance $70 per foot for the lateral tunnels, payments to be made at that rate on the 5th day of each month for work done during the preceding calendar month. Each of the companies has the right to construct lateral tunnels before its own claim and reserve credit therefor at the same rate.

"Article 7 provides for the repayment of these advances by allowing the mining companies to deduct one half of the monthly charges on ore reduced or sold, until the amount advanced is paid.

"Article 8 provides for the reduction of charges on ore from $2 to $1 per ton on ore yielding not over $40 per ton, a ton being 2000 pounds.

"Article 9 provides that the mines lying between the California on the north and the Chollar-Potosi on the south shall be considered drained whenever the tunnel is ready to receive water from the mines now connected with it. The mines north of the California or south of the Chollar-Potosi are to be considered drained as soon as the lateral tunnels reach their respective centers.

"Article 10 provides for the mining companies furnishing a sworn return of their product each month at each mill, with the actual yield in bullion, and for the payment of charges thereon, by the 10th day of each succeeding month.

"Article 11 provides that no mine shall allow any other mine which has no agreement to discharge its water through it so that it can be pumped into the tunnel.

"Article 12 provides for the construction of an outside parallel drain, if it shall at any time become necessary.

"Article 13 provides that all the agreements are to be deemed to be of the same purport.

"Article 14 declares all articles to be binding upon each party and their successors or assigns, etc."

This company held its annual meeting in San Francisco on the 1st inst. Three quarters of the capital stock of 2,000,000 shares was represented. The following gentlemen were elected trustees for the ensuing year: Elliott J. Moore, John J. Williams, Alexander Weill, F. F. Low, John F. Miller, Patrick N. Mackay, Chas. W Brush. At a subsequent meeting of the trustees, they elected the following officers: President, Elliott J. Moore; Vice-President, Charles W. Brush; Treasurer, Lazard Freres; A. Sutro, General Superintendent; P. W. Ames, Secretary.

THE ESMERALDA DISTRICT.

We are indebted to the San Francisco *Stock Report* for the following extracts, which we make from a very full and interesting review of this district, published in its issue of March 31st, 1879:

"Esmeralda County is in the western part of Nevada. Its western boundary is Mono County of California. The Esmeralda mining district is near the western limit of the county and north of the center line. Aurora is the town of the district and the county-seat of Esmeralda. The distance from Carson to Aurora is 98 miles. The now famous district of Bodie lies southwest of Aurora twelve miles.

"The discovery of the district was made August 22d, 1860, and organized eight days afterward. The pioneer mill of the district was erected early in 1861 by Edmund Green. The milling interest finally expanded to the following proportions:

Name.	Stamps.	Name.	Stamps.
Durand	10	Focus	16
Bodie Creek	10	Union	8
Stark & Tucker	10	Green	6
Real del Monte	30	Wide West	20
Antelope (old)	8	Winter's	16
Antelope (new)	20	Gregory	12
Gibbins	4		
Napa	8	Total	174

"The total bullion product of the district to date is approximately as under. The following table, exhibits the shipments through Wells, Fargo & Co.:

Shipped in	1861	$13,417.28
" "	1862	173,148.82
" "	1863	546,019.16
" "	1864	952,023.29
" "	1865	237,185.23
" "	1866	158,162.77
" "	1867	130,656.89
" "	1868	98,188.88
" "	1869	27,116.50
Total		$2,365,918.82

"Since 1869 the bullion product of the district has amounted to about $150,000.

"The assay office of Krouse & Reese, at Aurora, it is estimated, handled about half a million per month for a period of about eighteen months in succession. This would show $9,000,000 sent through one of the several assay offices in the town at that time.

"Mr. Garisha, for several years in Wells & Fargo's office at Aurora, and also a general banker, estimates that the gross bullion product of the district from 1860 to 1868 was $30,000,000. Most of the gentlemen who are competent to estimate, place the bullion yield at $15,000,000, of which $8,000,000 is credited to Last Chance Hill.

The principal operations now carried on in the district are those of the Real del Monte Mining Company, ground for its shaft having been broken December 5th, 1877. The shaft has three compartments, two hoisting (4 × 4½ feet) and a pump compartment 4½ × 5½ feet. On the 27th of January, 1878, at which time the shaft had attained a depth of 98 feet, the hoisting works were demolished by a hurricane. The works were temporarily rebuilt, and on the 2d day of February sinking was resumed. March 24th, at a depth of 231 feet, a slight flow of water was encountered in the shaft. The volume of water steadily increased as depth was attained, until, on the 19th of May, and when at a depth of 368 feet, the flow of water was so great as to drive the men from the shaft and compel a cessation of sinking operations. Pending the purchase and adjustment of heavy pumping machinery, a station was opened at the 300-foot level, and a drift started in a northwesterly direction for the ledge. The ledge was reached July 24th, at a distance of about 300 feet from the shaft. The hanging-wall dipped easterly at an angle of about 50 degrees from the horizon. The drift was driven through the vein a distance of nearly 400 feet and then stopped, no foot-wall having been reached. The material encountered in the vein was clay porphyry, containing numerous feeders of quartz and ore. Some of these feeders assayed as high as $600 per ton. The average assays gave three fourths gold and one fourth silver.

"This company has, thus far, expended $220,000 in preparing to prospect its vast amount of patented ground. The claims on the lode consist of 1000 linear feet by 200 feet, with four parallel locations 1000 by 200 feet, lying easterly from the lode, making a grand total of 1000 feet by 1000—covered by a United States patent. The claims embrace all the once largely productive portion of Last Chance Hill, including the following old locations: Wide West, Pride of Utah, Poorman, Johnson, Chihuahua, Western Summit, Last Chance, Ural, Bamboo, Lexington, Broderick, Honest John, Sunbeam, Midnight, Congress, Pond, Aurora, Real del Monte, Yellow Jacket, and many other parallel locations, Mark Twain's blind lode among the rest. The locations upon what is now the Real del Monte Company's property numbered 143 in 1863. The altitude of Aurora town is 7900 feet, Last Chance Hill, 8150 feet; collar of the Real del Monte shaft, 8125 feet. This company was incorporated in 1877 with a capital stock of $5,000,000, divided in 50,000 shares."

THE COMSTOCK.

The Gold Hill *News* of the 2d inst. summarizes the position on the Comstock as follows:

"In the Sierra Nevada, the incline is showing a new development, the value of which will be more fully determined as work progresses. But, whatever view is taken in regard to the formation there encountered, none can deny its importance.

"As it is, people are clamorous for cross-cuts to be made on the 2300 and 2400

levels. All agree that the indications already encountered are such as have never before been found on the Comstock. These cross-cuts would increase confidence all along the lode, and help to sustain the market.

"The bonanza mines are increasing their yield of bullion very materially over that of last month. The California clean-up was shipped last evening and amounted to $125,631.33; total for the month of March, $461,247.73, as against $165,891.83 for February. The Consolidated Virginia clean-up is to come, and, without the yield for March, is $16,423.50, in excess of February's yield.

"The activity manifested in the Imperial-Bullion group of mines is commendable. The indications there are most encouraging. The north drift, 2600 level, of the Imperial, is still skirting the vein and is encountering some stringers of unusual strength and richness. The same formation reaches on through the Alpha, on the 2400 level, and is found in the Exchequer on the same level, and in the Bullion on the 2150. They indicate an ore-body somewhere in that vicinity, which is likely to be found when cross-cuts are run on the lower levels.

"Belcher is now a strong objective point. The cross-cuts on the 2360 and 2560 levels are indicative.

"The situation toward the south end is without marked change, either in the Alta, Justice, or Silver Hill. The outlook in that direction is good.

THE EUREKA DISTRCT.

From the *Sentinel*, of recent dates, we learn that the new strike in the Banner mine is still widening and otherwise improving, assays of the ore going as follows: $103.67, $47.13, $63.77, and $81.75, the average of which is $74.08. The average of lead, in all of it, is about 30 per cent. There was a rumor that a rich strike had been made in one of the smaller mines on Ruby Hill. In the Eureka Consolidated the several ore-bodies continue to yield their usual amount and look the same as ever. There have been 123 feet of drifts completed since last report in the several levels. There has been no decrease in the amount of ore shipped. The vein of ore in the Hamburg is small but of good quality.

There are 600 miners at work on Ruby Hill and Prospect Mountain. About 450 tons of ore are shipped daily from the Ruby Hill mines. Ore is being taken from the Williamsburg that assays very high. The usual amount of prospecting has been done in the Phœnix. A drift from the bottom of the incline was started recently, in which the company expect to make a heavy strike shortly. The K K Company will begin cutting out the 800-foot station immediately, preparatory to prospecting. They have been hoisting ore for a week past. From the Richmond they are shipping 200 tons of ore per day. The same paper observes that the litigation between the Eureka Consolidated and the Richmond, before the Supreme Court at Washington, is at present only a proceeding with reference to the injunction that is to be argued. The main case, on its merits, will probably not be heard for a year. In view of the decline in the stock of the Eureka Consolidated, and for the information of our readers who may not be familiar with the case, we give the main facts in the case: The Eureka Consolidated obtained an injunction and stopped the Richmond from working upon the continuation of the Pott's chamber, lying southeasterly of the old compromise line. The Richmond appealed and gave bonds, thus preventing the Eureka from getting possession legally. The Richmond alleges that since the appeal the Eureka has been engaged in taking ore from the disputed territory. Last summer the Richmond tried to restrain the Eureka from working on the disputed ground until the final decision of the appeal should be had. That court dismissed the application. Since then the Richmond has applied to the Supreme Court at Washington to protect the disputed premises until after the final decision by that tribunal. The *Sentinel* adds: "Should the injunction be granted, we doubt whether it would materially, if at all, interfere with the Eureka. If we have been correctly informed, the latter has not been working on the ground in dispute for many months. And still we have an idea that, in some way, this litigation is affecting the price of Eureka shares."

UTAH.

Advices from the Ontario, on the 31st ult., stated that the shaft had reached a depth of 575 ft., the work progressing at the rate of 25 ft. per week. It is the intention to sink to a depth of 700 ft., and cross-cut at 600 and 700 ft. in depth.

SILVER REEF.

We take the following from the Salt Lake *Tribune* of the 5th inst.: "The mills and most of the mines are kept actively in operation and are producing satisfactorily. With the present milling capacities of the camp, it is computed by experienced mining men that the mines now being developed show enough ore to supply the several mills of the district for upward of two years. It may be argued that very little ore is required to supply five small mills whose stamps number but thirty-five all told, and that any ordinary mine producing sixty tons of ore per day could furnish more rock than they could crush. It should be remembered, however, that Silver Reef ore is of an exceptional character, that it is admirably adapted for crushing purposes, that it can be worked for less money than any other rock on the coast, that it contains no refractory elements requiring slow and expensive processes of separation, and that the men who handle it possess a practical and theoretical knowledge of their business. Thirty-five stamps operating on ore mined in this district will pulverize more rock each twenty-four hours than 200 stamps working on ore extracted from the limestone, quartzite, or granite formations of the north. As an evidence of this fact, it may be stated that on the 25th inst. Captain Lubbock's five-stamp mill with a fifty horse-power engine crushed the surprising amount of forty-eight tons of ore inside of twenty-four hours, which lacks 800 pounds of being ten tons to each stamp. This achievement is unparalleled in the history of milling operations, and though some remarkably fast crushing has been done in this camp, the above figures have never been equaled before, either here or elsewhere. The average value of the ore, which was shipped from the California, Maggie, Tecumseh, and Silver Flag, was $30, from which it appears that the result of the day's run was a $1440 bar of bullion. The deduction of $10 per ton for mining, shipping, and milling expenses will still leave no room for doubt that the mining and milling business in this camp is safe and profitable.

"The Barbee mine is developing finely, and though immense quantities of ore have been extracted, the ore-body seems to be permanent and richer than ever, and is mined in such quantities as to tax the capacity of the mine to the utmost.

"On the Buckeye Reef operations continue active. Litigation, with its attendant evils, retards work on several of the best mines, but in the Buckeye, Last Chance, Stormont, and others, development is progressing without interruption. The Buckeye is working a full complement of men and supplies the mill with more ore than it can separate, necessitating the addition of more stamps and pans. The product of this company's three-stamp mill, from February 7th, 1878, to February 6th, 1879, shows that a total of 3335 tons of ore were worked, giving a bullion value of $238,300. The figures represent the net value in gold, from the returns received from San Francisco after the sale of the bullion.

"The Last Chance is working fifty miners, and, under the management of live and practical men, is returning handsome dividends.

"Vigorous working on the Stormont has been resumed."

THE STEWART MINE.

This mine is located in the Bingham District. The *Tribune* says: "Several chambers have been opened out in this mine, one about 45 by 125 feet in solid ore, and yet no appearance of diminution either in richness or quantity. No matter where the eye rests, it is on ore.

"A recent cave occurred, and, instead of proving a detriment, has proved an immense advantage, not only in exposing the ore-body, but facilitating the working of the mine.

"Four men, two on the day and two on the night, are all-sufficient to supply the twenty-stamp mill with ore.

"A drift has been run about sixty-five feet lower down the hill than where the cave is, and is now in some forty feet. The ledge has been struck and ore found equal to any portion of the mine. This drift is somewhere in the neighborhood of 120 ft. from the surface, and the character of the ore is a hard white quartz. That this ore-body permeates the whole hill, is beyond question, as one chamber carries precisely the same nature of ore as the Bulldozer, and the assays are similar, both proving rich in gold."

THE LITTLE COTTONWOOD DISTRICT.

The *Herald* of the 4th inst. says: "Few, if any, of the mines are in this district working the customary number of men, and the consequence is that the miners thrown out of employment are coming to Salt Lake and looking around for new fields in which to find labor. This dullness, however, arises in part from a temporary cause. The little snow in the mountains is disappearing very rapidly, and the water is flooding the mines, thus interfering with work that otherwise would be pushed ahead. However, at the present rate of the disappearance of the snow, this obstacle will last but a short time, and the labor now suspended will, without doubt, be resumed. The Prince of Wales, Flagstaff, Toledo, Emma, and other properties are working short-handed. The Flagstaff is said to be employing 35 or 40 men, which is much less than the usual number. In addition to the other things, the roads are badly broken through the melting snow, which renders ore shipments difficult, and the ore is accumulating on the dump. A little below Central, and almost on a level with the tramway, is the Frederick tunnel. This tunnel will tap not only the Frederick mine, but the Crown Point, at a perpendicular depth of 940 feet, and the Toledo and Manitoba ledges will be cross-cut at a depth of 1200 feet. All the veins running west from the great Emma belt and passing through the Frederick hill will be cut at right angles by this tunnel. It is now in 925 feet, and will be to Alta what the Sutro Tunnel is to the Comstock. It is tracked with T rails, and is supposed to be the best piece of tunnel work in the Territory."

NEW PATENTS.

The following is a list of the new inventions relating to Iron, Coal, Mining Machinery, Chemical Apparatus, and the treating of Precious Metals, etc., from *The Official Gazette of the United States Patent Office*, for the week ending March 18th, 1879:

No. of Patent.	*Title of Invention.*	*Name of Inventor.*	*Residence.*
213,276	Portable Pump or Engine	Dana Bickford	New York, N. Y.
213,283	Speaking-Telephone	Webster Gillett	Yypsilanti, Mich.
213,294	Apparatus for Obtaining Dry Ammoniacal Gas	F. M. McMillan	Cleveland, O.
213,309	Pump	William C. Wilcox	San Francisco.
213,310	Device for the Lateral Adjustment of Shafts	Jonas W. Yeo	Richmond, Ind.
213,318	Gas-Generating Furnace	Edward Brook	Middlesborough-on-Tees, Eng.
213,319	Coating Metals	Aaron B. Brown	Worcester, Mass.
213,332	Scale-Beam	Alf'd A. Houghton (a)	Buffalo, N. Y.
213,346	Oil-Pump	Eugene Rew (b)	Friendship, N. Y.
213,353	Lining for Rotative Furnaces	Charles W. Siemens	Westminster, Eng.
213,366	Hoisting-Drum and Clutch Apparatus	Henry Whiteley	Wilmington, Del.
213,373	Ore-Feeder for Stamp-Mill	David H. Anderson	San Francisco, Cal.
213,381	Process and Apparatus for Separating Common Salt from its Solution	Leon Bemelmans	Kanawha C. H., W. Va.
213,382	Apparatus for Obtaining Metallic Copper from its Solution	Cyrus C. Bitner	Spenceville, Cal.
213,421	Machinery for Separating Ores	Heinrich Hochstrate	Hamburg, Germ'y.
213,423	Scale-Beam	Alf'd A. Houghton (c)	Buffalo, N. Y.
213,458	Telegraph-Conductor	John T. Shuster	Philadelphia, Pa.
213,476	Rotary Engine and Pump	Alexandre Vacherot	Battersea, Eng.
213,484	Photo-Chemical Printing	William Willis, Jr	Bromley, Eng.

(a) Assignor to the Buffalo Scale Company, same place.
(b) " of half his right to Justice A. Rew, same place.
(c) " to the Buffalo Scale Company, same place.

PROPOSALS.

For the benefit of many of our readers, we compile weekly such proposals and solicitations for contracts, etc., as may be of interest. The table indicates the character of proposals wanted, the full name and address of parties soliciting, and the latest date at which they will be received:

Elevator in New County Court-House, City of New York; Commissioners for the Completion of the New Court-House, New York	April	14,	1879
Architect's Designs for School House; L. F. Murphy, Building Committee, Council Bluffs, Iowa	"	15,	"
Army Transportation; M. J. Ludington, Chief Q M., Fort Omaha, Nev.	"	"	"
Wagon Transportation; Rufus Saxton, Deputy Q.M. General, U.S.A., Fort Leavenworth, Kan	"	"	"
Clearing, Grading, Bridging, etc., of the Eastern Division of the Indianapolis, Decatur & Springfield Railway; H. C. Moore, Chief Engineer, Tuscola, Ill	"	17,	"
Military Supplies; M. J. Ludington, Chief Q.M., Fort Omaha, Nev	"	"	"
Heating Apparatus for Department Buildings; Ernest Gagnon, Secretary Public Works, Quebec	"	19,	"
Elevators for U. S. Custom House and Post-Office at Chicago, Ill.; John Fraser, Acting Supervising Architect, Treasury Department, Washington, D. C	"	21,	"
Illuminating Floor-Tiling for U. S. Custom House and Post-Office, Chicago; John Fraser, Acting Supervising Architect, Treasury Department, Washington, D. C	"	"	"
Street Improvement; John E. Bell, President Public Works, Cincinnati, Ohio	"	26,	"
Water-Works for the City of Richfield Springs, N. Y.; Wm. B. Ward, President Water Board	"	28,	"
Architect's Designs for School-House; William Tindall, Secretary Commissioners, Washington, D. C	May	1,	"
Furnishing Stone for Crib Work; G. Weitzel, Major of Engineers, Detroit, Mich	"	5,	"
Improvement of Saginaw River, Mich; F. Harwood, Major of Engineers, Detroit, Mich	"	7,	"
Heating Apparatus; R. A. Mott, Faribault, Minn	"	10,	"
Designs for Pumping-Machinery, for which premiums will be paid, as follows: 1st best design, $500; 2d best, $300; 3d best, $200; W. E. Cutshaw, City Engineer, Richmond, Va	July	1,	"
100,000 tons of Steel Rails to be Manufactured in New Zealand; John Knowles, Under Secretary for Public Works, Wellington, New Zealand. (See advertising columns)	Sept.	30,	"
Stoping from 1000 to 3000 tons of Ore per Month, and Sinking a Working Shaft 400 feet deep; Henry M. Howe, Astor House, New York, from March 31st to April 2d; afterward, at 4 Pemberton Square, Boston, Mass.			
Grain Elevators; Oscar B. Larazin, C.E., Gratz, Austria. Letters can be seen at office of *Engineering News*, New York			
Gas—Supplying the City of Vera Cruz, Mexico, with Gas for a term of five years; Consul General of Mexico, 35 Broadway, New York			
Furnishing the City of New York with Gas, Maintaining Public Lamps, etc., excepting the Twenty-Third Ward and that portion of the Twenty-Fourth Ward known as West Farms, for one year, from May 1st, 1879, to April 30th, 1880; Commissioner of Public Works, New York			
Deepening out the Fairway between Königsberg and Pillau, East Prussia; Vorsteheramt der Kaufmannschaft Königsberg, Prussia			

STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative statement for the week ending April 5th and years from January 1st :

TONS OF 2240 LBS.	1879.		1878.	
	Week.	Year.	Week.	Year.
Wyoming Region.				
D. & H. Canal Co..	42,436	677,494	25,904	573,233
D. L. & W. RR. Co.	63,434	797,198	25,545	462,833
Penn. Coal Co.....	23,940	270,307	10,481	125,487
L. V. RR. Co.....	16,830	211,106	14,051	167,116
P. & N. Y. RR. Co..	.....	4,770	228	5,674
C. RR. of N. J.....	23,678	412,342	5,109	196,048
	164,308	2,373,217	81,408	1,530,391
Lehigh Region.				
L. V. RR. Co.....	50,055	607,393	33,669	497,116
C. RR. of N. J.....	28,840	473,524	17,189	219,798
S. H. & W. B. RR..	.....	8,514	.....	5,796
	78,895	1,089,431	56,858	722,710
Schuylkill Region.				
P. & R. RR. Co	142,362	1,501,252	151,084	672,591
Shamokin & Lykens Val....	18,847	155,228	7,769	106,243
	161,209	1,656,480	158,853	778,834
Sullivan Region.				
Sul. & Erie RR. Co.	749	13,733	217	8,314
Total	405,161	5,132,261	297,336	3,040,249
Increase.....	107,828	2,092,012	.....	.....
Decrease	.....	.....	.....	.....

The above table does not include the amount of coal consumed and sold at the mines, which is about five per cent of the whole production.

Receipts and shipments of coal at Chicago Ill., for the week ending April 5th, and year from January 1st :

	Week. Tons.	Year. Tons.
Receipts.....	23,311	439,334
Shipments.....	4,329	107,282

The increase of shipments of Cumberland Coal over the Cumberland Branch, and Cumberland and Pennsylvania railroads, amounts to 58,281 tons, as compared with the corresponding period in 1878.

Belvidere Delaware Railroad Report for week ending April 5th :

	Week.	Year. 1879.	Year 1878.
Coal for shipment at Coal Port (Trenton)	.....	.....	170
Coal for shipment at South Amboy	8,798	94,225	132,993
Coal for distribution.....	4,012	83,437	42,278
Coal for Company's use	767	25,656	22,378

The Production of Bituminous Coal for the week ending March 29th was as follows:

Tons of 2000 lbs., unless otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2240 lb	32,439	272,265
Barclay Region, Pa.		
Barclay R. R., tons of 2,240 lbs.....	6,066	100,202
Broad Top Region, Pa.		
Huntingdon and Broad Top R. R.....	2,247	35,477
*East Broad Top.....	1,453	13,267
Clearfield Region, Pa.		
*Snow Shoe.....	786	2,574
*Tyrone and Clearfield.....	31,438	252,876
Allegheny Region, Pa.		
*Pennsylvania R. R	3,353	33,094
Pittsburg Region, Pa.		
*West Penn R. R.....	3,810	42,726
*Southwest Penn. R. R.....	577	7,155
* Penn & Westmoreland gas coal, Pa. R. R.....	17,236	162,348
*Pennsylvania R. R.....	7,370	85,647

*For the week ending March 14th.

The Production of Coke for the week ending March 14th :

Tons of 2000 lbs.	Week	Year.
West Penn R. R.....	2.029	20,400
Southwest Penn. R. R.....	18,373	198,892
Penn. & Westmoreland Region, Pa. R. R.	1.279	25,734
Pittsburg, Penn. R. R.....	2,751	33,687
Penn. R. R. (Allegheny Region).....	1,240	11,694
Total...	25,672	280,407

COAL TRADE REVIEW.

NEW YORK, Friday Evening, April 11, 1879.

Anthracite.

The event of the week has been the Delaware & Hudson Canal Co.'s auction sale, at which the lowest prices ever known in this market at auction were recorded. There was a very fair attendance especially of those who usually handle this company's coal, but the prices did not appear to be attractive. The sale began with 5000 tons of steamer coal, which was moved with much trouble at an average of $2.03. Then followed 10,000 tons of broken, which did but little better, the average being $2.06. This rather lengthened the faces of those interested, and we suppose that the conclusion was arrived at that to let the sale "take care of itself" would be ruinous, and apparently some assistance was given to egg, which recorded an average of $2.09½. The impression is quite general that the stove and chestnut sizes were well bolstered. It certainly looked so, and, as equally good if not better coal was offered previous to the sale at lower prices, we do not hesitate to venture the opinion that these recorded prices were the result of more or less "bolstering."

The following quantities of coal were sold and average prices received, comparison being made with the average prices of the previous sale by the same company :

Tons.	Average prices, April 9th.	Average prices, Feb. 26th.
5,000—Steamer.....	2.03	$2.25
10,000—Broken.....	2.06	2.27
10,000—Egg.....	2.09½	2.27½
20,000—Stove.....	2.48⅛	2.64⅛
5,000—Chestnut.....	2.27½	2.42¾
50,000 General average.....	2.25¾	$2.46½

That these prices are ruinous should be known to every one. The auctioneer, upon seeing how difficult it was to dispose of the coal at even the very low range of prices at the beginning of the sale, proposed to "close the mines and go a-fishing." The managers of the coal companies would do well to consider this suggestion. The stocks would certainly advance if it were known absolutely that the company had only fixed charges to provide for out of loans. There is no other industry where business would be conducted at so great a loss as that of the coal trade to-day, and in no other would it require a meeting of the competing interests to bring about a curtailment of production. But the same laws that govern other branches of trade have not applied to coal mining for many years. An exhaustion of capital and credit will, however, make them operative at some day.

Our views are by no means changed as to the certainty of a very large demand for coal this year. The longer it is delayed, the greater will be the reaction both in the prices of coal and of freights. As we have frequently said, when the reaction does take place and prices show an advance, as they must, there will be a great rush for coal, and not only will prices rapidly appreciate, but there will also be a large demand for vessels, and freights will advance. We therefore continue to advise our readers to put in as much coal as they can handle, believing that, although prices may still go lower, they will profit largely by purchases made now.

The demand during the week has been rather quiet.

There was more talk about a coal combination this week. Mr. Gowen, of the Reading Company, was here two days, and Judge Packer, of the Lehigh Valley Railroad Company, was expected, but, from some cause, did not come. We can not learn, however, that there is likely to be a meeting of the representatives of the several interests; while it is decidedly more improbable that any thing would be done if a meeting could be brought about.

The Pennsylvania & New York Railroad Company has announced the following rates : To Buffalo from Coxton, $1.85 ; to Rochester, $1.69. Rates in returning: Coxton to Buffalo and the Bridges, when consigned to points beyond, $1.70.

The rate to New York via the Lehigh Valley Railroad and the Morris Canal is announced at 80c.

The production of anthracite coal last week was 405,161 tons, as against 457,113 tons the previous week, and 297,336 tons the corresponding week of last year The total production from January 1st to April 5th was 5,132,261 tons, as compared with 3,040,249 tons for the like period of last year, showing an increase this year of 2,092,012.

Our Philadelphia correspondent, writing yesterday, says :

"The local trade is active here, and orders for shipment at tide-water are accumulating rapidly, vessels being very scarce. Freights to Boston are up to $1.40@$1.45. It is calculated that the orders on hand here will keep the trade moving lively for six weeks to come. The time seems not far distant, in spite of the struggle of some of the companies to drive the others into a combination by forcing prices down, when prices will naturally go up, from the demand being in excess of the supply."

Bituminous.

Considerable business has been done during the week in bituminous coals, and at lower figures than ever before made in the trade. The contracts of the New York, New Haven & Hartford, Boston & Providence, and Fitchburg Railroads have fallen to the Cumberland field, and the Boston & Maine Railroad and other large business to the Clearfield operators, chiefly at prices delivered. These prices, which have been made as low as $3.63 delivered at India Point and Boston below bridges, give the sellers, instead of profit on their coal, simply a gambling venture on sea-freights, with the odds decidedly against them. It is not unlikely that the railroad buyers of New England may have occasion hereafter to consider the soundness of sellers as much an element in contracts as the quality and price of coal.

Bituminous coals from West Virginia, shipped from Richmond by the Chesapeake & Ohio Railroad, have also been sold at extremely low figures.

The indications mentioned in a previous issue, that the Pennsylvania Railroad was not keeping faith in the agreement to regulate tolls, made with the Baltimore & Ohio Railroad and Chesapeake & Ohio Canal, have been fully confirmed. In fact, the drawback that had been allowed the Clearfield producers, and which was to have been stopped about a month ago, was only withdrawn in some instances on Monday last. It was evidently the intention of the Pennsylvania Railroad to have taken the bulk of the New England bituminous trade, and the Clearfield shippers canvassed the market with an evident understanding of the situation. The Baltimore & Ohio Railroad has thus far adhered to its last year's rates, but is exposed to a strong pressure for a reduction, which is confidently predicted by those shippers who have been the principal sellers of Baltimore coal. In such an event, the Chesapeake & Ohio Canal would be the victim, and a heavy loss of tonnage to this route is already foreshadowed. Nearly all such undertakings to cut up and distribute trade fail in the end to divide as originally intended. The managers of these outlets would secure better results from developing their trade upon plain and reliable business principles instead of from trying to cheat each other under unnatural compacts. A policy that will cheapen the cost of coal at tidewater will make more money than that which measures a probable price and tries to squeeze the uttermost cent out of it from an industry already burdened almost to death. The George's Creek & Cumberland Railroad project is receiving increased attention and encouragement. Its success is vital to the centrally-situated properties of the Cumberland coal basin, and would put a new face on the affairs and prospects of that field.

Messrs. C. M. Underhill & Co. write (April 4th) as follows :

"Prices in Buffalo remain unchanged in anthracite. Rumors of cutting are afloat, but these, if true, are so in exceptional cases. Stocks cleaned out and prospects good for early business."

New York.

Wholesale Prices of Anthracite Coal Delivery f. o. b. at Tide Water Shipping Ports, per ton of 2240 lbs.

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
WYOMING COAL.	$	$	$	$	$	$
§Lackawana, at Weehawken	2 35	2 35	2 40	2 40	2 75	2 60
*Pittston, at Newburg.....	2 35	2 35	2 35	2 35	2 70	2 45
L. Val. Coal Co., at Amboy	.....	.....	.....	.....	.....	.....
Honey Brook Lehigh.....	.....	.....	.....	.....	.....	.....
Wilkes-Barre at Pt. Johnson	.....	.....	.....	.....	.....	.....
Plymouth R. A. at P. John.	.....	.....	.....	.....	.....	.....
LEHIGH COAL.						
†Spring Mt. at P. Amboy....	3 25	.....	2 85	2 85	2 85	2 75
Old Company L., at Eliz'p't	3 30	3 10	2 75	2 75	2 75	2 60
Cross Creek, at Port John.	3 00	2 75	2 75	2 75	2 75	2 65
†Buck M. at Eliz. Pt. or S. A.	3 00	2 75	2 75	2 75	2 85	2 75
Fulton.....	3 30	.....	2 75	2 75	2 75	2 60
SCHUYLKILL COAL.						
‡*Alongside at N. Y. Harbor.*						
Hard White Ash.....	.....	.....	2 75	.....	.....	2 65
Free-Burning W. A.....	.....	.....	2 50	2 50	2 75	2 65
Schuylkill Red Ash.....	.....	.....	.....	2 60	2 85	.....
Lorberry.....	.....	.....	.....	.....	.....	.....
Lykens Valley Vein.....	.....	.....	.....	3 50	3 75	.....

* Fifty cents per ton additional for delivery in New York, and fifteen cents per ton additional for delivery at Weehawken.

† These prices are given by Whitney, McCreary & Kemmerer.

‡ On coal delivered f. o. b., at shipping wharf at Williamsburg, the current rate of harbor freight will be allowed from above prices.

§ F. o. b. at Weehawken, N. J., less 10 cents per ton commission.

Wholesale Prices of Bituminous Coal.

Per ton of 2240 lbs.	At the Shipping Ports.	Alongside at New York.
DOMESTIC GAS COALS.		
Westmoreland and Penn.....	$4.25	.....
At Greenwich, Philadelphia	.....	$5.50
At S. Amboy.....	5.00	5 50
Kanawha at Richmond	4.10	5.40
Youghiogheny, Waverly Co., at Balt ...	4.00	5.65
Murphy Run, West Va., at Baltimore.. ..	3.75	5.85
Fairmount, West Va., " " ...	3 75	5.70
Newburg Orrel, Md. " " ...	3.75	6.00
Cannelton & Peytona Cannel, West Va.	....	10.00
" Splint " at Richmond.	6.00	7.00
" Gas Coal at Richmond	4.00	5.65
MANUFACTURING AND STEAM COALS.		
Cumberland at G'n & Alexandria.	2.75@2.90	4.35@4.50
Cumberland, at Baltimore.....	2.90@3.00	4.35@4.50
Cl'rf'd "Eureka" and "Franklin."		
At mines.....	0.75	....
At Baltimore & Phila....	3.25	4.50

FOREIGN GAS COALS.

	Sterling.	Am. cur'ncy
Newcastle, at Newcastle-on-Tyne	7s.6d.	$2 50@ $3.50
Liv. House Orrel, at Liv.	25s.	13.00
Ince Hall Cannel "	35s.6d.	18.00
" Gas Cannel "	25s.6d.	10 00@ 10.50
Scotch Gas Cannel, at Glasgow, nominal	25s.	7 50
	Gold.	
Bl'k House, at Cow Bay, N.S.	$1.75	$4.50
Caledonia, at Pt. Caledonia	1.50	4.25
Glace Bay at Glace Bay	1.50	4.00
Lingan, at Lingan Bay	1.50	....
Intern'l Mines, at Sydney	1.75	4.50
Pictou, Vale Mines, at Pictou	2.00	4.70

Retail Prices.

Per ton of 2000 lbs.

Anthracite.

	G. & Egg.	Stove.	Chest.
Pittston coal delivered	$3.75	$4.00	$3.75
Lack. coal, delivered below 59th St.	3.50	3.75	3 50

Pittsburg. April 10, 1879.

COAL.—The miners having generally returned to work in the Monongahela collieries at 3 cents, the price for which they turned out, it was supposed the labor difficulties in the district were ended. But in consequence of the men in Brown's mines working for 2¾ cents a bushel, a universal feeling of discontent broke out, and all work was suspended yesterday to enable the men in other mines to attend a mass meeting called for the purpose of influencing the recreants working below established wages to insist on the union prices. Whether they will carry their point is not yet known. During the late period of high water, coal was freely shipped to all the lower markets from Pittsburg, West Virginia, and Ohio, which has prevented any increase in prices, though there was a stiffening to some extent during the suspension here, occasioned by a separate demand for Pittsburg coal, owing to its peculiar properties. As this special demand is but limited, and has been met, prices have returned to their former level under the pressure of ample shipments from the nearer coal regions, which hold the market steady independent of the Pittsburg supplies. No coal has yet been discovered which equals that from this quarter for the manufacture of gas. This superiority consists in the large residuum of coke after the gas has been driven off. The quantity is surprising—600,000 bushels of coal, after undergoing the manufacturing process in the gas-house, yield 550,000 bushels of coke, which will ordinarily pay about three fourths the cost of the coal. No other coal has been found in our country from which this result can be obtained. There are plenty of coals in West Virginia, Kentucky, Tennessee, Alabama, Ohio, and Illinois from which gas can be made, but they all lack the yield of coke, so essential a factor in reducing the price of gas, and rendering its manufacture profitable. The troubles at the mines have raised prices here by rendering coal scarce, about 1½ cents a bushel, 1 cent at Cincinnati and Louisville, and 2 cents a barrel at New Orleans. This being but a temporary rise, now nearly over, we continue our quotations as heretofore:

PRICES AT PITTSBURG.

Wholesale, on board..... 4 cts. per bushel, $1.06 per ton
Retail, delivered ..... 5½ " " 1.46 "

AT CINCINNATI.

Wholesale, on board..... 6 cts. per bushel, $1.59 per ton
Retail, delivered..... 7½ " " 1.99 "

AT LOUISVILLE.

Wholesale, on board..... 6 cts. per bushel, $1.59 per ton
Retail, delivered..... 7½ " " 1.99 "

AT NEW ORLEANS.

Wholesale, on board.....25 cts. per barrel, $2.42 per ton
Retail, delivered.....40 " " 3.87 "

Bushels are rated among dealers here at 76 lbs.—26½ bushels make a ton, nearly.

The barrel that rules the coal measurement in New Orleans contains 2 4-7 bushels of 80 lbs. each, making about 200 lbs. Nine and two-thirds of these barrels weigh a ton, within a small fraction.

COKE.—To supply the 3600 coke ovens of the Connellsville district, about 1000 coal miners have been employed. At present they are out on a strike, which began several weeks ago. Their demand is an increase of 20 per cent in their pay, which the operators peremptorily refuse, on the ground that the rate at which coke sells leaves them no margin on which they can sustain their business with such an increase of expense. As no skill is required in mining the coal used in coking, they are employing green hands, and hope, ere long, to find enough to take the place of the strikers. Over 100 have already gone to work. The coal is so soft that it can be handled by common diggers almost as easily as sand banks are shoveled out and removed. The pay for mining has been for years ¾ of a cent per bushel, at which the men make from $1.75 to $2 per day. There having been no change in prices, we quote as before—$1.15 to $1.30 per ton of 2000 lbs. on board cars at ovens. —*American Manufacturer.*

San Francisco. April 11, 1879.

COAL.—Imports from January 1st to March 1st.: Anthracite, 965 tons; Coos Bay, 7265 tons; Vancouver Island, 21,619 tons; Seattle, 21,752 tons; Carmel Bay, 100 tons.

The market seems to be more than ever depressed with a large stock accumulation of anthracite, and for which the demand is very trifling at or about $10. Coos Bay is now selling ex ship at $5.75, and all other kinds proportionately low. We know of no cargo sales of English, Scotch, or Australian to record for forward delivery, while spot prices are more or less nominal. The arrivals during the week embrace the following cargoes: From Seattle, per Lizzie Williams, 1300 tons; Great Western, 2120 tons; Harvest Home, 960 tons; Portland, 687 tons screenings; Coos Bay, per Laura May, 350 tons; Jennie Stella, 400 tons; Clara Light, 258 tons; from Nanaimo, Belvedere, 2010 tons; Victoria, 1529 tons; M. Nottebohm, 1500 tons Wellington; bark Revere, 1200 tons do. California Mt. Diablo steam sells at $4@$4.50 for fine screenings, and $4.75@$5.25 for coarse.—*Commercial Herald.*

FREIGHTS.

Ocean Freights.

Ocean Freights on coal, iron, etc., per ton of 2000 lbs. to and from foreign and domestic ports, for four weeks ending April 10th, 1879, are given below.

DATE.	From	To	Cargo.	R'te
Mch. 12	Southern Deposits	United Ki'gd'm	Guano.	**
" 18	New York	Wash'gt'n, D.C.	*	1.60
" 18	Elizabethport	Baltimore	Pig-iron	90
" 18	Hoboken	Portland	Pig-iron	1.70
" 20	Philadelphia	Cardenas	Coal	1.10
" 20	Philadelphia	Matanzas	Coal	1.10
" 20	South Amboy	Havana	Coal	1.00
" 20	Perth Amboy	Portland	Pig-iron	1.60
" 21	New York	Bridgeport	Guano.	1.50
" 21	Baltimore	St. Thomas	Coal	2.75
" 21	Port Johnson	Aspinwall	Coal	3.50
" 21	Black Rock	City Point	*	2 00
" 21	Boothbay	Savannah	‖	1.75
" 25	Philadelphia	Galveston	RR. iron	4.75
" 25	New York	Boothbay	Salt	¶
" 28	Philadelphia	Portland, Or'g'n	RR. iron	8.50
" 28	Perth Amboy	Port Royal	RR. iron	1.85
" 28	Perth Amboy	Boston	Pig-iron	1.40
" 28	Philadelphia	St. Thomas	Coal	2.75
" 28	Baltimore	Martinique	Coal	2.90
" 28	Baltimore	St. Thomas	Coal	2.75
" 28	Wood's Hole	Petersburg	Guano.	1.75
Apr. 1	South Amboy	Havana	Coal	1.00
" 1	Baltimore	St. Jago	Coal	1.50
" 1	Ashley River	Orient	†	2.75
" 1	Charleston	Baltimore	†	1.75
" 1	Portland	New York	§	††
" 4	Philadelphia	Havana	Coal	1.30
" 5	Baltimore	St. Thomas	Coal	2.75
" 8	Hoboken	Richmond	Rails	95

* Phosphates. † Phosphate rock. ‡ Phosphates and railroad iron. § Old rails. ‖ Super-phosphates. ¶ $1 per ton. ** 42s. 6d. †† $1 f. o. b.

Rates of Freight on Anthracite Coal to Tide-Water Ports.

SCHUYLKILL COALS.

Per ton of 2,240 lb.

	From * Pine Grove.	From * Tamaqua.	From * Schuylkill Haven.	From Port Clinton.
To *Port Richmond*, via P. & R. R. R., Main Line, for shipment	1.75	1.65	1.50	.....
To *Harrisburg*, via Lebanon Valley Branch	1.10	1.60	1.45	.....
To *Allentown*, via East Pennsylvania Branch	1.37	1.32	1.17	.....
To *Lancaster*, and Points on Lancaster Branch, via R. & C. R. R.	1.49	1.44	1.27	.....
To *Dauphin*, via Schuylkill and Susquehanna Branch	93	1.32	1.17	.....
To *Slatedale Junction*, via Berks and Lehigh ranch	1.52	1.47	1.32	.....
To *Lebanon*, via Lebanon and Tremont Branch	84	.....	.....	.....
To *Philadelphia*, via Schuylkill Canal, including loading and trimming and the tolls	.....	.....	1.25	1.15
To *New York*, via Schuylkill Canal, including loading and trimming, tolls on the Schuylkill Canal and Delaware & Raritan Canal and the towing between Fairmount and Bordentown and between New Brunswick and New York and down Delaware River	.....	.....	2.00	1.90

From *Tamanend*† to *Catawissa, McAuley, Mainville, Rupert* and *Danville*, via Catawissa & Williamsport Branch Railroad 90

From *Tamanend*† to *Williamsport, Hall's* and *Montoursville*, via Catawissa & Williamsport Branch Railroad 125

*For shipment via Main Road (except to Port Richmond for shipment) or Schuylkill Canal, one and one-half cents per ton per mile, and two cents per ton additional to Schuylkill Haven, Pine Grove, Tamaqua or Port Clinton, for Canal, as the case may be. Provided no charge shall be less that 15 cents, or greater than 45 cents per ton

† Coal sent to points on the Catawissa and Williamsport branch will be charged one and one half cents per ton per mile, and two cents per ton additional to Tamanend.

No separate charge for freight and tolls for coal consigned to Port Richmond for shipment, will be made for Laterals, but there will be collected on all such coal upon the Laterals on account of the entire through charge to Port Richmond: 25 cents at Schuylkill Haven, 10 cents at Tamaqua, and 5 cents at Pine Grove.

For consumption at local points in coal region, including Shamokin, Herndon, Schuylkill Haven, Pine Grove, and Tamaqua, three cents per ton per mile, and two cents per ton additional; and a charge for *car service* of fifteen cents per ton when in Philadelphia and Reading Railroad cars, provided no charge, including freight tolls and car service, shall be less than twenty-five cents per ton. If the coal is for manufacturers, the rate wi be two cents per ton per mile, and two cents per ton additional; and a charge for car service of five cents per ton when in Philadelphia and Reading Railroad cars. Provided no charge, including freight, tolls, and car service, shall be less than fifteen cents per ton.

Sent westward via Northern Central Railway (in N. C. R W. Co.'s cars), three cents per ton per mile, from collieries west of Locust Summit to Locust Gap, or Shamokin, provided no charge will be made less than four cents or more than fifteen cents per ton.

One mile extra will be added for coal passing through the East Mahanoy Tunnel.

Fractions of distances and rates will always be stated in *tenths.*

No charge will be made for weighing or making returns of coal shipped, and the latter will be furnished free of charge upon application to the weighmaster; if these returns are to be sent by mail, envelopes properly stamped and addressed, must be furnished to the weighmasters.

All coal will be charged the rates (both lateral and main line) current on the day it is weighed; it will also be waybilled on the same day.

Coastwise Freights.

Per ton of 2240 lbs.

Representing the latest actual charters to April 4th, 1879.

PORTS.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnson, South Amboy, Hoboken and Weehawken.
Baltimore	50@45	.....	.....
Bangor	1.30	1.75	.....
Bath, Me	.....	1.65	.....
Boston, Mass	*	1.65	1.00@1.15
Bridgeport, Conn.	85	1.40	.....
Bristol, R. I.	1.23	.....	.....
Brooklyn	.....	.....	.....
Cambridge, Mass.	.....	.....	.....
Cambridgeport	1.50	.....	.....
Charleston	1.25@1.30	.....	.....
Charlestown	1.30	.....	.....
Chelsea	1.45	.....	.....
Danversport	.....	.....	.....
Derby	1.15	.....	.....
East Cambridge	.....	.....	.....
Easton, Md	1.00	.....	.....
Fall River	.....	1.40	80
Fortress Monroe	.....	.....	.....
Fredericksburg	.....	.....	.....
Galveston	.....	.....	.....
Georgetown	75	.....	.....
Gloucester	1.35	.....	.....
Hackensack	1.01	.....	.....
Hampton, Va	65	.....	.....
Hartford	1.50	1.40	.....
Jersey City	.....	.....	.....
Key West, Fla	2.25	.....	.....
Lynn	1.35†	.....	.....
Marblehead	.....	.....	.....
Medford	1.77½	.....	.....
Middletown	.....	.....	.....
Milton	1.70‡	.....	.....
Nantucket	1.50	.....	.....
Newbern, N. C.	80	.....	.....
New Bedford	1.50	1.40	90
New Brunswick	.....	.....	.....
New Castle, Del.	30	.....	.....
Newburyport	1.35	1.80	.....
New Haven	1.10	1.40	.....
New London	.....	1.40	.....
Newport	1.25	.....	.....
New York	82@85	1.30	.....
Newark	.....	.....	.....
Norfolk, Va	65	.....	75
Norwich	.....	1.45	.....
Norwalk, Conn	.....	1.45	.....
Pawtucket	1.25‡	1.45	.....
Peekskill	85	.....	.....
Petersburg	.....	.....	1.10
Pine Island	1.45	.....	.....
Portland	1.25@1.35	1.65	1.00@1.15
Portsmouth, Va.	.....	.....	.....
Portsmouth, N.H.	1.40	1.80	.....
Providence	1.15@1.17½	1.40	80
Richmond, Va	.....	.....	85
Rockland	.....	.....	1.65
Saco	1.75	.....	.....
Sag Harbor	1.25	.....	.....
Salem, Mass.	.....	1.75	.....
Savannah	1.40	.....	.....
Somerset	.....	.....	.....
St. John, N. B.	.....	.....	1.00
Washington	75@85	.....	.....
W'lmington, Del.	1.50	.....	.....

* 1.30§@1.37½§.

* And discharging and towing. † And discharging. ‡ And towing. § 3 cents per bridge extra. ‖ Alongside.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, April 11, 1879.

A *Tribune* reporter attempted to interview William H. Vanderbilt on the subject of his late purchase of English rails, but received no information. A prominent official of the New York Central Railroad said:

"The English steel rails were not ordered by Mr. Vanderbilt until after a careful examination of the cost. Chemical and other tests of both American and English steel rails were also made. The amount of English rails ordered was 10,000 tons, at a cost, loaded, of £5 a ton. To this must be added a duty of $28, which will make the rails cost, delivered here, about $53 a ton. The American Bessemer steel rails cost from $45 to $47 a ton, and, on large orders, they can probably be purchased as low as $43 a ton, the price varying according to the place of delivery. The manufacturers of the English steel give a guarantee of twelve years' wear, all rails not coming up to the standard to be replaced free of cost. Every American manufacturer applied to declined to furnish such a guarantee, five years being the longest time for which a guarantee was offered. It is well known to railroad men that the utmost limit of wear for American steel rails, as now manufactured, is five years, where they are subjected to the strain of heavy traffic such as continually passes over the New York Central Road. Some of the English rails now laid on this road have been in constant use for many years without showing the least evidence of wear, while American steel, laid at the same time, has worn out, and must be replaced. The purchase of this large quantity of English rails was made by Mr. Vanderbilt purely for reasons of economy, and after considering carefully all the elements involved in the matter. The purchase of rails that cost 25 per cent more than American rails, and give nearly 100 per cent more wear, can not, under any circumstances, prove a reckless expenditure, nor can the stockholders be injured in the least by such a purchase."

In addition to the grievance of the rail-makers, the producers of iron ore will probably begin to complain. It is now estimated that nearly a quarter of a million tons of Spanish and African ores will be imported

into this country this year. We are informed that a large contract for the delivery of Spanish ores at Pittsburg has recently been made. Vessels going abroad for this ore should be utilized in the introduction of coals in new markets.

American Pig.—The Thomas Iron Company reports sales of 500 tons of various grades on the basis of $19 for No. 1 Foundry. There has been other business, but not of an important nature. There has been considerable inquiry, and we are informed that under the prevailing low west-bound freights the Western business is developing very rapidly. A number of furnaces have gone into blast, and others are preparing to do so. This will have the tendency to prevent a further rise in prices, if it does not bring about a decline. It is thought that there is likely to be a scarcity of good No. 1 Foundry iron. We quote No. 1 Foundry at $18.50@$19; No. 2 Foundry, $17; and Forge, $15.75@$16.50.

Scotch Pig.—This article continues to be dull. We quote Eglinton at $20; Coltness, $22; Glengarnock, $21@$21.50.

Rails.—We learn of no business, and quote steel rails at mills at $43@$44, and here at $45@$46.

Old Rails.—A small business is reported at $21.

Wrought Scrap.—Without business, we quote at $24@$25.

Messrs. King, Gilbert & Warren, of Columbus (O.) write, April 8th:

"We have nothing of importance to note as to the condition of the pig-iron market. The advance in prices, made since the first of the year has been maintained. The prospect of a further advance, however, is not as encouraging as it was a few weeks ago. The demand is fairly active. Quotations same as last reported."

At Cincinnati prices remain about the same as last reported.

Our Baltimore correspondent writes, under date of April 7th:

"The iron market here shows a steady demand for all grades of pig-iron, stocks on hand being very light. Prices are firm at about as last quoted."

The following, dated April 8th, is from Pittsburg, Pa.:

"There is a fair inquiry for standard brands of mill iron but no improvement in prices. Foundry iron is in better demand than for some months, and prices firm. An advance of 50c. to $1 per ton may be fairly quoted on Bessemer pig-iron, owing to scarcity and higher prices of good ores."

Louisville advices, dated as above, are as follows:

"The demand is not so brisk, but prices are firm. Most manufacturers have bought sufficient to supply present contracts for work, and seem disposed to take the risk of the market for any future wants."

Philadelphia. April 10, 1879.

[Specially reported by JUSTICE COX, JR., & Co., Iron Merchants, 333 Walnut street, Philadelphia.]

Pig-Iron.—The advance in pig is well established, and all lots now selling are at full quoted prices. The sales the past week have not been so large as for two or three weeks, but the delivery of iron continues larger than for some time past, and stocks on furnace banks are rapidly fading away. The cheap lots have been taken from the market, and producers are having about all they can do to keep up with the demand. No. 1 and Gray Forge are very scarce, while No. 2 is more plentiful. We quote: No. 1, $18.50 to $19.50; No. 2, $16.50 to $18.50; Gray Forge, $16 to $17.50, all Philadelphia.

Manufactured Iron.—The demand for bar iron continues good, and most mills in this neighborhood are running on orders, with no stock to speak of, and the advance fully established. The plate mills report good business, but not so full as the bar mills. In skelp and tank-iron a good business is doing, at full prices. We quote bars 1 8-10@2c.; plate and tank, 2⅛@6c., and skelp, 1 9-10@2 2-10c. per lb.

Rails.—The steel-rail mills continue to have all the orders they care to accept, at full prices. Iron rails continue in good demand, most mills running full. We quote steel at $42@$44; iron, $32@$36, all at mills.

Old Rails.—Spot rails continue scarce, and full prices are offered. We quote spot, $22@$22.50; future delivery, $20.50@$21.50.

Muck Bars.—The demand for muck bars continues, and $31.50@$33 is quoted.

Scrap.—The demand for cast scrap is dull, while good wrought is in demand at $20@$22.

METALS.

NEW YORK, Friday Evening, April 11, 1879.

The past week has been a very quiet one. There are indications of better business to come soon.

RECEIPTS OF METALS AT NEW YORK FOR THE THIRTEEN WEEKS ENDING APRIL 3D AND YEAR FROM JANUARY 1ST, 1879.

	Mar. 13	Mar. 20	Mar. 27	Apr. 3	Year from Jan. 1.
Copper, bbls	18	32	225	64	1,630
Copper, boxes	.....	.....	.....	.....	.....
Copper, cakes	321	.....	654	622	4,104
Lead, pigs	4,671	11,069	2,980	9,936	56,070
Spelter, pieces	7,525	4,523	712	.....	33,350
Quicksilver, flasks	.....	.....	.....	.....	.....

Copper.—This article continues in the same artificial position it has held for a long time, and the business is very small. The Lake Superior companies are asking 16c.

From London, under date of March 28th, we have received the following relative to copper:

"There was a little more demand to-day for Chili bars, and, owing to the scarcity of available metal, buyers were compelled to pay advanced prices. We note 25 tons of good brand at £55½, and 25 tons of favorite mark at £56, cash, but at these figures the orders only seem to be for comparatively limited quantities to supply pressing wants. We call values as follows: Good ordinary brands, £55½@£55¾; favorite, £55¾@£56; best, £56¼@£57, with no particular disposition either to buy or sell thereat. The Chili telegram, now about due, may perhaps help to give a more decided tone to the market. Wallaroo is quoted at £63½@£64, and Burra Cake, £63@£63¼. English Copper remains dull, with rather a wide difference between buyers' and sellers' views. Tough Cake, £60@£61½; Ingot, £61@£62; Select, £61@£62½; India sheets, £64@£65; Yellow metal sheets, 5 7-16@5 9-16."

Tin.—Yesterday's London quotation for Straits was £68 10s., Singapore quoted $21.50, and Penang $21.40, with exchange at 3s. 8⅝d. The Billiton sale will take place on the 14th inst. There has been no business done in this market. Straits is quoted at 14⅛@15c.; L. & F., 14⅛@15c.; Refined, 15@15⅛c.

From London, under date of March 26th, we have received the following:

"The Banca sale of 23,300 slabs went off this morning at prices ranging from 41¼ to 42¼ florins, the average of the whole sale being 42 florins, or about equal to 71¼s., in warehouse, London. This, showing an advance on the values lately ruling in Holland, for that article, has caused a corresponding improvement on this side, and after a few sales of Australian and Straits, made early in the day, at 66¾s.@67s., buyers paid 67⅛s. at the close of first 'Change, and gave this afternoon as high as 68s."

Under date of the 27th we have received the following:

"The bulk of the stock being held out of the market, there was a little pressure to cover 'bear' sales for delivery this month, and about 30 tons, cash, changed hands at 69s. to 69⅛s. We closed, however, with a quieter feeling, 68⅛s. being accepted for delivery end April."

Tin Plates.—The English makers had a meeting yesterday for the purpose of bringing about a further curtailment of production. We have not been able to learn the result of the meeting. There has been a better jobbing demand in this market, but with this exception there is nothing to note. We quote, as follows, per box: Charcoal, bright, ⅛ X., Melyn grade, at $6.25, and Allaway grade, $6.12½; charcoal ternes, Allaway grade, $5.75; coke, bright, B. V. grade, $5.30@$5.37½, and coke roofing, 14 × 20, $5.

Messrs. Robert Crooks & Co., of Liverpool, under date of March 27th, say of tin and terne plates:

"Best charcoal tins and ternes are very full, and only small orders placeable for prompt delivery. Lower grade charcoals, both tin and terne, are weaker, while cokes of all descriptions are easily bought at 6d. under the highest point reached. This in spite of a resolution arrived at by makers in conclave assembled, that for the future the minimum for ordinary coke is to be 17s., other qualities at usual differences."

Lead.—There have been sales of between 1500 and 2000 tons of pig-lead since our last, mostly at $3@$3.05. The market closes at $3.05@$3.10, with no indications of a rising tendency.

Spelter and Zinc.—Spelter is quiet, and quoted at 4½@4¾c. Sheet zinc is dull, at 6¼c.

Antimony.—We learn of a sale of 20 casks of Hallett's on private terms. We quote Cookson's at 12@12¼c., and Hallett's at 11⅝@11½c.

Quicksilver.—The San Francisco *Commercial Herald* of April 11th says: "We have no transactions to record. Business seems to be in a quiescent state, and the price entirely nominal—say 37½c. The proposed combination to restrict production is still in abeyance. Our London correspondents advise price of Quicksilver there £6 2s. 6d., the second-hand lot of Spanish having been gradually cleared off at about 1s. under Rothschild's price, leaving the market in his hands, the stock of Italian being disposed of also."

THE BULLION MARKET.

NEW YORK, Friday Evening, April 11, 1879.

The encouraging signs of an improvement in the silver market which obtained last week have been lost within a day or two, and the market has relapsed into its chronic state of weakness and incertitude. This is probably the result of yesterday's official announcement of the German government that it would not increase the amount of its subsidiary silver coinage (it having been announced it was likely to), and the inference therefrom being that the government would continue its sales of silver.

DAILY RANGE OF SILVER IN LONDON AND NEW YORK, PER OZ.

DATE.	London	N. Y.	DATE.	London	N. Y.
	Pence.	Cents.		Pence.	Cents.
April 5	49¾	108¾	April 9	50@49⅞	108¾
April 7	49¾	108¾	April 10	49¾	108½
April 8	49⅞	108¾	April 11	49¾	108½

BULLION SHIPMENTS.

We give below a statement showing the latest bullion shipments in addition to those announced in our issue of April 5th:

March	24th	Northern Belle	Nev	$8,023.37
"	26th	Belmont	"	4,450.37
"	28th	Alexander	"	10,162.08
"	29th	Ophir	"	11,274.14
"	29th	Con. Virginia	"	28,277.94
"	29th	Pioche	"	11,476.28
"	31st	Martin White	"	15,025.00
"	31st	Grand Prize	"	8,200.00
"	31st	Independence	"	5,500.00
April	1st	California	"	125,613.33
March	25th	Bodie	Cal.	5,272.78
"	25th	Standard	"	17,759.00
"	25th	Bulwer	"	18,284.10
"	29th	Silver Reef	Utah	31,602.10
April	1st	Pioneer	"	5,498.16
"	3d	Stormont	"	18,266.41
"	3d	Christy	"	6,928.84
"	3d	McCormick & Co	"	56,560.00

Horn-Silver shipped, from the 27th of March to the 3d inst., 172,380 lbs. of bullion.

The Precious Metal Balances of the Bank of France.—We are indebted to the *Commercial and Financial Chronicle* of the 5th inst. for the following interesting statement showing the composition of the stock of the precious metals held by the Bank of France on the 31st of December of each year (1850–1878). Ciphers (,000) omitted:

Year	Coin.		Bullion and Foreign Coins.	Total.		General Total.
	Gold.	Silver.		Gold.	Silver.	
	£	£	£	£	£	£
1850.	700	17,236	860	1,560	17,236	18,796
1851.	3,328	19,212	168	3,496	19,212	22,708
1852.	2,832	16,940	136	2,968	16,940	19,908
1853.	4,180	7,932	272	4,452	7,932	12,384
1854.	7,216	7,448	4	7,220	7,448	14,668
1855.	1,660	6,156	400	2,060	6,156	8,216
1856.	2,304	3,912	*968	2,984	*4,200	7,184
1857.	3,856	4,788	*388	4,024	*5,008	9,032
1858.	10,724	10,180	*628	11,124	*10,408	21,532
1859.	8,724	12,604	*900	9,124	*13,064	22,188
1860.	5,036	9,948	*984	5,460	*10,508	15,968
1861.	8,956	3,708	204	9,160	3,708	12,868
1862.	7,016	4,364	696	7,712	4,364	12,076
1863.	5,076	2,948	32	5,108	2,948	8,056
1864.	9,932	3,680	412	10,344	3,680	14,024
1865.	11,184	4,856	1,464	12,648	4,856	17,504
1866.	18,104	5,484	4,280	22,384	5,484	27,868
1867.	17,736	12,528	9,520	27,256	12,528	39,784
1868.	13,748	18,992	11,564	25,312	18,992	44,304
1869.	20,024	22,404	6,928	26,952	22,404	49,356
1870.	11,324	2,552	*6,012	17,148	*2,740	19,888
1871.	19,244	3,172	*2,968	22,136	*3,248	25,384
1872.	23,260	4,924	*3,468	26,348	*5,304	31,652
1873.	21,940	6,064	*2,700	24,452	*6,252	30,704
1874.	32,512	12,536	*7,980	40,484	*12,528	53,012
1875.	39,836	20,168	*7,168	46,972	*20,200	67,172
1876.	50,740	25,544	10,476	61,216	25,544	86,760
1877.	36,384	34,616	10,700	47,084	34,616	81,700
1878.	38,052	42,324	1,292	39,344	42,324	81,668

*The column of Bullion and of Foreign Coins represented for these years, 1856–60, 1870–75, the gold and silver, divided according to their respective proportions in the columns of the total of gold and silver.

A Mint Wanted at Omaha.—The citizens of Omaha have petitioned Congress to establish a branch mint in that city.

Germany's Silver Coinage.—The *Frankfurter Zeitung* states that it has inquired into the rumors recently current that Germany intended to largely increase her silver coinage, and learns from authoritative quarters that no such increase is contemplated.

Production of the British Columbia Gold Mines for 1878.—The annual report of the Minister of Mines, for the year ending December 31st, 1878, states the total yield of gold from all parts of the province at $1,275,204. The number of miners employed in extracting this amount was 1883, 1085 of whom were Chinese.

The Carson (Nev.) Mint Coinage for March.—The coinage operations of the Carson Mint during the month of March were as follows: Double eagles, $38,700; standard silver dollars, $86,000. Total, $124,700.

The *Bulletin* of March 26th says of the San Francisco silver market:

"There has been quite an improved demand for silver in this market during the past few days for export to China. The London market is comparatively bare, and European buyers for China and East India account have had to resort to the San Francisco market. The Nevada Bank sold $400,000 in trade-dollars for China by the last steamer. Since then, the same bank has sold all the fine silver on hand and to come forward up to the sailing of the next China steamer for the same market. The Bank of California is understood to have sold nearly all of its fine silver for China. The sales aggregate a value of about $750,000. This relieves the market for the present, and prevents any large bids being sent to Washington to-day for government rejection. Our bullion dealers generally do not like the way in which they are treated by the Treasury Department. The demand for China just at present is due to the opening of the tea season. Already buyers are in the field or on their way, ready to make large purchases of new-crop tea as soon as the same comes upon the market, and the silver is being sent forward to cover bills. The second steamer in April and the two steamers in May will probably take considerable silver if it can be had."

FINANCIAL.

Coal Stocks.

NEW YORK, Friday Evening, April 11, 1879.

To-day has been observed at the Stock Exchange as a holiday. The coal shares, both here and in Philadelphia, have had an inclination to weakness. Immediately after the auction sale on Wednesday, when the lowest prices on record for a public sale in this city were registered, the prices of the stocks began to advance; but this lasted but a short time. There has

been considerable talk about a new combination; but there are few who express hopes that any thing will be done. The sales here have been as follows: Delaware & Hudson Canal Co., 3540 shares, at 43@40; Delaware, Lackawanna & Western RR., 94,453, at 51⅛@48¼; New Jersey Central, 43,145 shares, at 42¾@39½.

In Philadelphia the dealings were: Lehigh Coal & Navigation Co., 566 shares, at $15⅝@$15⅜; Lehigh Valley RR., 1024, at $35@$34¼; Pennsylvania RR., 29,537, at $35⅛@$34⅞; Philadelphia & Reading, 17,194, at $13⅝@$13⅛.

The Pennsylvania Steel Co. announces a dividend of 4 per cent, payable April 15th.

Miscellaneous Stocks and Quotations.

Sales and quotations of the stocks and bonds dealt in here, at Philadelphia and Baltimore, for the week ending the 11th inst. are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus †.

STOCKS.	Par Value.	High'st	Lowest	Closing	Sales: Shares.
American Coal Co.	$25	.....	.....	.....	.....
St.L.,I.M.& S.R.Co..	100	14½	14⅛	14½	100
Spring Mt. Coal Co.	50	.....	.....	50	.....
*Cambria Iron Co..	50	.....	.....	65½	100
*Penn. Salt Mf'g Co.	50	.....	.....	73	32
*Westm'land C. Co.	50	.....	.....	53	.....
*Buck Mt. Coal Co..	50	.....	.....	35	.....
*Schuyl. Nav. Co...	50	.....	.....	.....	.....
†B.&O.RR.Co.1st pf	.....	103¼	103¼	103¼	20
†B.&O.RR.Co.2d pf	100	99¾	.....	99	1
" " " com	90	90	86½	86¾	139
†George's C'k C. Co	100	.....	.....	55	.....
†S. Clara M'g Co...	100	.....	.....	25	.....
†Atlantic Coal Co.	10	.....	.....	80	.....

BONDS.	Prince'l. When Due.	Int'est. When Due.	Hig'st.	Lowest	Amount.
D., L. & W., 7s, conv	1891	J. & D.	.....	.....	.....
" " " 2d mtge.	1882	M. & S.	.....	.....	.....
N.J.C.,1stmtge.new	1890	F. & A.	115	.....	$8,000
" " " 1st mtge.,con	1899	Q.	87	86	*553,000
" " " convt.....	1902	M. & N.	103½	.....	†31,000
Lehigh & W. B., con	1899	Q.	54	51	†156,000
Am. Dock & Imp. 7s	.....	J. & J.	65	.....	7,000
St.L.I.M.& S..1st mt	1892	F. & A.	110⅛	.....	5,000
Ches. & O., 1st mtge	1899	M. & N.	.....	.....	.....
D & H C Co.,1stm.rg	1884	J. & J.	98	97	9,000
" " " " "	1891	J. & J.	99	98	5,000
" " " " " m.loan cp	1894	A. & O.	.....	.....	.....
" " " " " rg.	1894	A. & O.	.....	.....	.....
" " " " " new mge.	.....	.....	.....	.....	.....
*L.V.R.,1stm.6s.cp.	1898	J. & D.	.....	.....	.....
" " " rg.	1898	J. & D.	.....	.....	.....
" " " 2d m. 7s,rg.	1910	M. & S.	117	116½	3,000
" " " con.m.6s,rg	1823	J. & D.	102	.....	10,000
" " " 6s cp.	1923	J. & D.	102	.....	1,000
*Pa.RR.,1st m.6s,cp	1880	J. & J.	104¼	.....	10,000
" " g. m., 6s, cp.	1910	J. & J.	111¼	.....	1,000
" " " 6s, rg.	1910	A. & O.	111½	.....	1,000
" " con.m.6s,rg.	1905	Q.	103½	.....	2,000
" " " 6s, cp.	1905	J. & D.	103	.....	4,000
" " new loan, 6s	.....	.....	112½	112	15,000
*P.& R. R., 1st m.6s, R. C. 43-44.....	1880	J. & J.	103½	103¼	33,000
P. & R. R., 1st m. 6s, R. C. 48-49.....	1880	J. & J	.....	.....	.....
P.& R. R.,2d m.7s cp	1893	A. & O.	114½	.....	4,000
" " " scrip....	1882	J. & J.	50¼	.....	4,000
" " " in.m.7s,cp	1896	J. & D.	46	.....	2,000
" " " c.m.7s,cp.	1911	J. & D.	105	104½	35,000
" " " " 7s. rg.	1911	J. & D.	105	.....	1,000
" " " cvt.7s,R.C	1893	J. & J.	.....	.....	.....
" " C.& I.Co.,Deb 7s, R. C.....	1892	M. & S.	.....	.....	.....
& R.C.& I. Co., m. 7s, R. C.....	'92-3	various	60	.....	4,000
*L.Nav.Co.,6s,rg.m.	1884	J. & J.	103½	103	10,500
" " RR., rg. m.	1897	F. & A.	.....	.....	.....
" " cvt. co. G. R.	1894	M. & S.	92½	.....	1,000
" " " Gold R. C.	1897	J. & D.	93½	92½	5,000
" " con.m.7s,rg.	1911	J. & D.	.....	.....	.....
*P.& N.Y.C.,7s,R.C.	1896 / 1906	J. & D.	.....	.....	.....
*Pa Canal, 6s, cp..	1910	J. & J.	65¼	.....	1,600
*Schuyl.Nav.,1st m. 6s. rg.....	1897	M. & O.	.....	.....	.....
*Sus.Coal, 6s, rg...	1911	J. & J.	.....	.....	.....
†Balt.&O. RR., 6s..	1880	J. & J.	102	101⅞	3,000
" " " " 6s..	1885	A. & O.	105⅛	105	3,500

Total transactions for the week.. ..... $922,000

* Assented. † $30,000 assented, selling at from 54@15.

Gas Stocks.

NEW YORK, Friday Evening, April 11, 1879.

The market is dull but strong, and transactions few.

Rates for gas are being reduced in England. The Radcliff & Pilkington Gas Co. has recently reduced the price per 1000 feet from 5s. 5d. to 5s.

Lighting the Street Lamps of New York.—The Gas Commission met on the 10th instant and adopted resolutions awarding contracts to the New York Gas-Light Company for lighting all the public lamps south of Grand street, at $13 each; to the Manhattan Gas Company for all the lamps between Grand and Thirty-fourth streets, at $12 each; to the Metropolitan Gas Company for the lamps now lighted by that company between Thirty-fourth and Seventy-ninth streets, at $18 28 each; to the New York Mutual Gas Company for the lamps now lighted by that company between Thirty-fourth and Seventy-ninth streets, at $19 each; to the Harlem Gas Company for all the lamps between Seventy-ninth street and Harlem River, at $17.70 each; to the Yonkers Gas Company for the lamps in that part of the Twenty-fourth Ward formerly constituting the town of Kingsbridge, at $30 each for one year, from May 1st, 1879, to April 30th, 1880. By these awards a saving of over $18,000 is effected from the present prices.

The Montreal City (Canada) Gas Co. reëlected its directors on the 1st inst. The report showed a profit of $224,932.23 on the year, and the total assets of the company are stated at $2,036,609.

A Gas Company at Leadville, Colo.—George K. Fisher, Dennis Sullivan, and Charles L. Hall have filed articles, and for the first year become trustees, of the Leadville Illuminating Gas Company, which proposes to operate on a capital of $250,000, divided into 2500 shares at $100 each.

The Carital Gas Company, of Sacramento, has declared its usual quarterly dividend, payable on demand.

The Reading Iron and Coal Company is experimenting with the electric light, so as to enable them to unload coal vessels by night.

The South Boston Gas-Light Company is threatened with a competitor, a movement being on foot to extend the pipes of the Boston Gas Company into the streets of the former city. Exorbitant rates, a total disregard to the wants of comsumers, etc., etc., are stated as the reasons for the proposed change.

AUCTION SALES:

Metropolitan Gas-Light Co.—10 shares, at $125¼.
Citizens' Gas-Light Co.—30 shares, at $71 per share.
Harlem Gas-Light Co.—10 shares, at $45¼.
Brooklyn Gas-Light Co.—10 shares, at $141½ per share.

The following list of Companies in New York and vicinity is corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas Stocks, No. 30 Broad street, New York:

COMPANIES IN NEW YORK AND VICINITY.	Capital Stock.	Par.	Dividends. Rate per ann.	Dividends. Am. of last.	Dividends. Date of last.	Quotat'ns Bid.	Quotat'ns As'd.
	$		P. ct.				
Mutual, N. Y....	5,000,000	$100	6	1½	Apr., '79	70	74
" Bonds...	90,000	1,000	6	3⅛	Feb., '79	99	102
N. York "	4,000,000	.....	8	4	Nov, '78	100	105
Metrop. "	2,500,000	100	10	5	Feb., '79	120	125
" Certfs...	1,000,000	.....	7	3½	Feb., '79	100	102
Harlem "	1,850,000	50	6	3	Feb., '78	35	45
Manhat. "	4,000,000	50	....‡	5	Feb., '79	190	195
Brooklyn, Bkln.	2,000,000	50	15	5	Jan., '79	138	142
Nassau	1,000,000	25	....‡	3	Jan., '79	70	75
" Certfs...	700,000	1,000	7	3½	Nov. '78	96	100
People's.....	1,000,000	10	....‡	3½	Jan., '76	26	30
" Certfs....	300,000	1,000	7	3½	Jan., '79	75	80
" Bonds....	325,000	.....	7	3½	May, '78	90	90½
Metrop. "	1,000,000	100	5	2½	Nov., '78	50	60
W'msb'g "	1,000,000	50	8	1½	Jan., '79	80	90
" Certfs...	1,000,000	.....	7	3½	Jan., '79	90	95
Citizens'.....	1,200,000	20	....‡	3	Jan., '79	70	80
" Certfs....	320,000	1,000	7	3½	Apr., '79	90	100
J. C., N. J.....	750,000	20	10	7½	Jan., '79	140	150
Municipal, N.Y.	466,000	50	.....	.....	.....	100	115
" Bonds..	750,000	.....	.....	.....	.....	95	...
.....	.....	.....	.....	.....	.....	.....	...

Copper and Silver Stocks.

Reported by WILSON W. FAY & Co., Brokers in Mining and Miscellaneous Stocks, Room 7, Traveller Building, 31 State street.

BOSTON, Thursday Evening, April 10, 1879.

There has been quite an excitement during the week, principally on the stocks outside the Board, and a great deal of speculative feeling, though the operators display a great deal of caution, which is in fact necessary, as some of the manipulators of the new mining stocks placed on the market are adopting every means, no matter how dishonest, to place their stock at high figures.

Calumet & Hecla has advanced to 176 on the strength of another $5 dividend, and closes steady.

Copper Falls is rather quiet at .09 bid and .13 asked (assessment unpaid), and sales at .12½.

Franklin is also quiet at 4@4¾.

Osceola is quite strong, having advanced to 12½ bid and 12¾ asked.

Pewabic is rather weak at ½@¾, there being a rumor of a $3 assessment, for the purpose, as is said, of making the mine a productive one, and it will probably have the desired effect if the stock does not die out in the mean time.

Quincy is also firmer, at 11¼@11⅜, and sales at 11¼.

Ridge shows more strength, at ⅞@$1, and sales at $1.

Duncan is quiet and firm, at 4¼@4⅜.

International is also quiet and rather weak at 45@47c.

Altar is unchanged to any extent, at 1¾@2, and sales at $1.90.

Commonwealth Consolidated has been quite lively, having advanced from 50 to 75c., and is talked of as going higher, while there are other parties who predict that it will go to nothing.

Sullivan Silver still reports its vein as growing wider and better, the stock closing weak at 6 bid and 8 asked.

March Copper Products.—The *Mining Gazette* reports the following:

	Tons.	Pounds.
Calumet & Hecla	1350	730
Osceola	158	...
Franklin	139	175
Atlantic	137	1460
Quincy	120	1250
Allouez Tribute	100	360

Gold and Silver Stocks.

NEW YORK, Friday Evening, April 11, 1879.

The business of the week under review has been confined to five days, to-day having been observed as a holiday at the two Exchanges. For the five days the average number of shares sold was less than the preceding week, which showed a material falling off compared with the business of previous weeks. This might be construed as showing a falling off in interest in mining investments; but such is not the case, as there is a very large business being done in the shares of companies whose stocks are not listed, while there still continues to be a liberal business in the San Francisco stocks direct with that city.

The San Francisco stocks especially the old bonanzas, have been very liberally dealt in. We note sales as follows: Bodie, 205 shares, at $10½@$10; California, 900, at $5¼@$6¼; Consolidated Virginia, 2170, at $5½@$6½; Grand Prize, 150, at $3½@$3¾; Independence, 525, at $1.45@$1.35; Bechtel, 70, at $2; Consolidated Imperial, 1170, at $1.40@$1.60; Consolidated Pacific, 100, at $2.25; Hussey, 1000, at 25c.; Julia, 10, at $4; Kossuth, 100, at 15c.; Leviathan, 300, at 20c.; Tip Top, 100, at 75c.; Tuscarora, 9050, at 7@9c. There is said to be a very active absorption of the Bodie stocks in this market.

Previous to yesterday there was but very little activity in mining shares at the New York Stock Exchange. Homestake ranged during the week between $33 and $32, with sales of 580 shares. The sales of Ontario only amounted to 110 shares, at $40½@$40. In Quicksilver Common the dealings amounted to 400 shares at $12½@$12¼. Sutro Tunnel ranged between $4 and $4⅜, with sales of 1530 shares. Mariposa Preferred records 200, at $3@$3¼, and of the common stock 100 shares, at $2¾. Yesterday the Standard mine was called for the first time, opening at $34¾, and advanced to $35, buyer 3. Afterward a decline set in, and $32¼ was the last recorded sale. The sales amounted for the day to 2000 shares. This stock promises to be a very active one. There has been a very sharp advance during the past week, owing to a dispatch having been sent on here by one of the principal owners in San Francisco, announcing that a four-foot ledge, showing $100 ore, had been struck.

The better class of stocks on the Mining Exchange have been moderately active. Findley records 2200 shares, sold at 57@58c. Moose has been quite active, but weak, selling from $3.25 down to $2.95, with total sales, 9270 shares. In New York & Colorado the sales have only amounted to 200 shares, at $2.05. Plumas has been very quiet, the sales only amounting to 400 shares, at $3.30@$3.20. King's Mountain sold to the extent of 200 shares, at $1.60@$1.40. Leadville continues quite active, the sales amounting to 8200 shares, at $2.45@$2.85, notwithstanding many unfavorable reports from the mine. The dealings in Trio amount to 150 shares, at 60@56c. Hukill sold at $2.50@$2.40, the total sales amounting to 200 shares. We have very satisfactory information from this mine.

With the exception of Bertha & Edith, the fancies have been rather quiet. The sales have been as follows: Bertha & Edith, 162,050 shares, at 25@33c.; Buckeye, 33,000, at 40@50c.; Dahlonega, 9900, at 25@22c.; Gold Placer, 15,600, at 30@22c.; Granville, 15,600, at 18@16c.; Lacrosse, 17,500, at 29@26c.

A dispatch from the Plumas mine, dated April 8th, says: "Every thing indicates near approach to pay ledge in lower tunnel."

There is an effort being made to secure the consent of the stockholders of the Plumas National Quartz

COAL STOCKS.

NAME OF COMPANY.	Capital Stock.	Shares. No.	Shares. Par Val.	Last Dividend. Mo.	Y.	A't.	Rate per Ann.	Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted, so much per share. Apr. 5. H.	Apr. 5. L.	Apr. 7. H.	Apr. 7. L.	Apr. 8. H.	Apr. 8. L.	Apr. 9. H.	Apr. 9. L.	Apr. 10. H.	Apr. 10. L.	Apr. 11. H.	Apr. 11. L.	SALES.
	$		$				Per c'nt													
Consol. Coal.	10,250,000	102,500	100	Jan.	77	2½														
Del. & H. C..	20,000,000	200,000	100	Aug	76	4	9	43	42	42⅛	41¾	41⅛	40⅜	40¾	40⅝	40⅜	40	.....	.....	3,540
D., L.& W. RR.	26,000,000	524,000	50	July	76	2½	5	51½	50	50⅝	49⅜	50⅝	48¾	49⅜	48⅜	49¼	48⅛	.....	.....	94,453
Lehigh C.& N.	2,...,950	208,971	50	Nov	76	1½	5½	15½	15½	15⅝	15⅜	15⅝	15⅜	15½	15⅜	.....	.....	.....	.....	566
Leh. V'y R. R.	27,228,855	540,858	50	Mch	79	1	4	35	35	35	35	34⅞	34¾	34¼	34¼	34⅛	34⅜	.....	.....	1,024
Maryl'd Coal	4,400,000	44,000	100	Jan.	76	1½	1½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N. J. C. R. R.	20,600,000	206,000	100	Apr	76	2½	2½	42¾	41½	42¾	41⅛	41½	40⅜	41⅜	40¼	40⅝	39½	.....	.....	43,145
Penn. Coal...	5,000,000	100,000	50	May	78	3	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penn. R. R...	68,870,200	1,337,404	50	Nov	78	2	8	35¾	35⅛	35½	35⅛	35¼	35⅛	35¼	34⅞	35¼	34⅞	.....	.....	29,597
Ph. & R. R. R.	34,278,175	685,563	50	Jan	76	42½	10	13⅝	13⅛	13⅜	13⅛	13¼	13⅛	13⅜	13¼	13⅜	13¼	.....	.....	17,194

The Delaware and Hudson Canal Co. has paid in dividends to date $38,821,104, and the Philadelphia and Reading $43,012,497
Total Sales.....189,519.

Mining Company to organize under the laws of New York, instead of California, under which the present organization exists. Should this be done, it will make the stock much more popular, as there is a strong prejudice in the minds of many against stocks that can be assessed.

At a meeting of the directors of the King's Mountain Mining Company, held in this city on the 9th inst., Mr. Arthur Macy, a graduate of the school of mines of this city, was appointed superintendent. A report from the mine says that it is developed 9 feet on the vein which shows ore assaying from $83 to $443 per ton of 2000 lbs. Work will be vigorously prosecuted in opening up the mine, with the view of commencing to reduce the ores at a very early day. The company has a milling capacity of 100 tons per day, and it is expected to soon show results that will meet the expectations of the most sanguine friends of the enterprise. We congratulate the company upon this timely strike, and believe that it will do much to stimulate the development of the North Carolina gold range. Mr. Mackey, of the Bonanza firm, is reported to have stated some time ago that the indications in this mine were such that were it on the Pacific Coast it would be worth $500,000. He is now a large stockholder, and was formerly a director in the company, having resigned owing to his inability to do justice to the position. The management of this mine is in the hands of some of the most prominent business men in this city and Philadelphia.

The Ontario Silver Mining Co. has declared a dividend of 50c. per share for the month of March, pay able at the office of Wells, Fargo & Co. on the 15th inst.

The office of the Horn-Silver Mining Co. will be removed to the Bank of North America's building on Wall street. The stock of the company, offered at $17.50 per share, has met with a very ready sale, and but little more will be offered at that price.

SAN FRANCISCO MINING STOCK QUOTATIONS.
Daily Range of Prices for the Week.

NAME OF COMPANY	CLOSING QUOTATIONS						Opening.
	April 4.	April 5.	April 7.	April 8.	April 9.	April 10.	April 11.
Alpha	17	17¾	19½	19½	20	20½	....
Alta	4½	4½	4⅝	4¾	5⅛	5	....
Argenta	....	....	....	....	....	....	....
Bechtel	....	....	....	....	....	....	....
Belcher	5⅞	6	5⅞	6	5½	6	....
Belle Isle	....	....	....	....	....	....	....
Benton	....	....	....	....	....	....	....
Best & Bel.	14⅝	15	16¾	16½	16	16¼	....
BlackHawk	....	....	....	....	....	....	....
Bodie	10	10	8½	8	7½	7¾	....
Booker	....	....	....	....	....	....	....
Bullion	4¾	4¾	5⅛	5¼	5	5⅛	....
Bulwer	....	....	....	....	....	....	....
Caledonia	2⅛	1⅝	2⅛	2⅛	2¼	2¼	....
California	5	5¼	5⅜	5½	5¾	5¾	....
Chollar	41	5½	6½	6½	6⅛	6⅛	....
Confidence	....	....	....	....	....	....	....
Con. Imp	....	....	....	....	....	....	....
Con. Va	5¼	5¾	6	5⅞	5⅝	5¾	....
Crown P'int	4½	4⅝	4⅝	5	4¾	5⅛	....
Endowm'nt	....	....	....	....	....	....	....
Eureka Con	18½	16	17	18	17½	....	....
Exchequer	4½	4¼	4⅞	5	5	5	....
Goodshaw	....	....	....	....	....	....	....
Gould &Cur	7⅛	6⅞	7⅛	7⅛	7⅛	7⅛	....
Grand Prize	....	3¼	3⅜	3⅜	3¼	3½	....
Hale & Nor.	9⅝	9½	9⅞	10	10⅛	10	....
Hamburg	....	....	....	....	....	....	....
Homestake	....	....	....	....	....	....	....
Hussey	....	....	....	....	....	....	....
Indep'd'nce	....	....	....	....	....	....	....
Jackson	....	....	....	....	....	....	....
Julia Con	3¾	3¾	3⅝	3¾	3⅞	3⅞	....
Justice	3½	3⅛	3⅝	4½	4¼	4⅛	....
Kentuck	....	....	....	....	....	....	....
Kossuth	....	....	....	....	....	....	....
Leopard	....	....	....	....	....	....	....
Leviathan	....	....	....	....	....	....	....
Manhattan	....	....	....	....	....	....	....
McClinton	....	....	....	....	....	....	....
MeadowVal	....	....	....	....	....	....	....
Mexican	30	29¾	29½	31	29¾	30¾	....
Mono	....	....	....	....	....	....	....
Navajo	....	....	....	....	....	....	....
North. Belle	10	10	9¾	....	9⅜	9½	....
Ophir	20¾	20½	21½	22¾	22	22¾	....
Orig. K'ys'e	....	....	....	....	....	....	....
Overman	9	9	9	9⅜	9½	9¾	....
P. Sheridan	....	....	....	....	....	....	....
Potosi	....	5	4⅞	4⅝	5	....	....
Ray. & Ely	4¼	4¼	4¼	4½	5	5¾	....
Richer	....	....	....	....	....	....	....
Savage	9¼	9¼	9½	10¼	9¾	10¼	....
Scorpion	....	....	....	....	....	....	....
Seg.Belcher	....	....	....	....	....	....	....
Sierra Nev.	42	40¾	43¼	45	42½	42	....
Silver Hill	....	....	....	....	....	....	....
Silver King	....	....	....	....	....	....	....
Summit	....	....	....	....	....	....	....
Tioga	....	....	....	....	....	....	....
Tip Top	....	....	....	....	....	....	....
Union Con.	55	55¼	55	56¼	54½	56½	....
Utah	....	....	....	....	....	....	....
Ward	....	....	....	....	....	....	....
WashoeCon	....	....	....	....	....	....	....
Wells Fargo	....	....	....	....	....	....	....
Yel. Jacket.	13¼	....	13¾	14¾	14¼	15¼	....
....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....

REVIEW OF THE SAN FRANCISCO MARKET.

At the close yesterday the Comstock list showed some improvement on the extreme depression we have so frequently noted recently. In no instance is the advance specially marked, but the feeling is evidently a better one. The present extraordinary manipulation of the San Francisco market by the ring, the fact of which we have intimated in these columns for some time past, is beginning to receive attention at the hands of some of our contemporaries of the Pacific coast. A recent issue of the *Mining and Scientific Press* says:

"The stock manipulators have allowed mining stocks to decline of late, till a decided panic has taken place. There was nothing from the mines to warrant this beyond the fact that no immediate benefit could be made to accrue to the Comstocks from the Sutro Tunnel compromise. However, this was largely used as an excuse, together with the expected disastrous effects of the new Constitution on stock operations, if adopted next May. These are, to great extent, mere pretexts. The present break did not come without assistance, and that assistance, beyond a doubt, was furnished by the insiders to force the marginal stock upon the market. This stock was finally squeezed out and immediately absorbed by somebody, which is enough to warrant the opinion that the break was forced for this purpose, and perhaps the passage of these shares from weaker into stronger hands will open up the way to a more active and advancing market."

All of our exchanges agree that the present depression is but temporary.

Alpha closed yesterday at an advance of $3½ per share.

Alta shows some improvement.

Belcher closed yesterday at $6 per share, a material decline from recent prices, yet equal to the best price of the week. The incline shaft of this mine has reached a depth of 2660 feet below the surface, and, as these hoisting works are 413 feet below the level of the Gould & Curry croppings, the total depth below these is 3073 feet; this shaft is therefore the deepest on the Comstock lode. Cross-cutting has been commenced on the 2360 and 2560 levels of this mine, with indications which are pronounced promising by members of the bonanza firm, who recently visited the same.

Best & Belcher shows some improvement, with nothing of particular interest from the mine.

Bodie closed yesterday at $7¾, against $8 a week ago and $10 on previous dates. A rich ledge is reported to have been struck in this mine.

Black Hawk is not quoted on this market, but has been selling quite freely in San Francisco at from $3.20 to $3.60 per share. Good progress is being made in this mine.

Bullion is better.

Bulwer has changed hands on the San Francisco market recently in limited amounts, at from $15½ to $16½ per share. This company is now milling ore which runs $200 per ton, a recent clean-up from 350 tons giving a result of $75,000.

Booker, a Bodie mine, has been quite active in San Francisco, at from 60c. to 75c. per share. This company and the Spaulding are having quite a dispute. Last week the Booker Company ran a drift into the Spaulding shaft. The latter company immediately put in a bulkhead. On the 2d inst. an armed force from the Booker mine broke down the bulkhead and took forcible possession of the Spaulding works.

Caledonia is steady; the company have decided to shut its shaft down for the present, and to do all necessary work through the Overman shaft, which is now down about 550 feet.

Consolidated Imperial shows a gradual improvement, late sales being made at $1⅝. The south drift on the 2600 level of this mine is being pushed rapidly ahead to connect with the 2400 level of the Yellow Jacket.

The old bonanzas are improving, and are making a very respectable showing in their bullion output. Their present combined ore-product amounts to nearly 600 tons per day, of which the California Company contributes about 350 tons. The flow of water in the C. & C. shaft continues unabated. This shaft is now down 185 feet below the 2150 level, and is being sunk at the rate of two feet per day. A survey has been made, and the main lateral drift from this to the Sutro Tunnel will soon be commenced. The combined product of the two mines now amounts to considerably above $500,000 per month. The Con. Virginia Company, after paying the dividend of 50c. per share, declared on the 7th inst., should carry over a surplus of nearly $600,000, according to supposed well-informed parties.

The Chollar-Potosi Mining Company has increased its share capital from 28,000 to 224,000 shares, or eight times. The particulars of the segregation may be summed up as follows: "The Chollar-Potosi Company deeded the north half to the Chollar and the south half to the Potosi. Each mine has 700 feet. The old stockholder will, therefore, get for each share of his stock four shares of Chollar and four of Potosi. The Chollar-Potosi owned fourteen twenty-sixths of the Chollar-Norcross-Savage shaft. Each of the segregated mines, therefore, takes seven twenty-sixths of this shaft and an equal proportion of all the personal property there."

Crown Point is said to have improved.

Exchequer is a little better.

Eureka Consolidated stock has advanced. The usual amount of bullion is being turned out by this mine, and the several levels are reported as looking well.

Gould & Curry closed yesterday at the best price of the week. Bulkheads are being placed in this mine to stop the influx of water from the west. When these are completed, the incline will be abandoned, and all the machinery moved to the new shaft.

Hale & Norcross closed yesterday at $10, against $9½ a week ago. The pumps continue to hold the water below the 2000 level of this mine.

Julia is steady; the winze below the 1800 level of this mine is reported as showing a fine body of quartz. This company has a balance of $90,000 in its treasury, and its President authorizes the statement that no assessment will be necessary before two months.

Justice is well maintained. Thirty-five tons of ore per day are being reduced from this mine by the Pappoose mill. A suit has been entered by this company against the firm of Shultz & Von Borgen, formerly President and Secretary of the company, to recover $250,000 received by them from the Alta Mining Company, etc.

The stock of the Manhattan Mining Co. is being very sparingly dealt in on the San Francisco market at from $1.10 to $1.50 per share. This company continues to make shipments, and the mine is reported as looking well. The management is unchanged.

Northern Belle is lower. We note nothing of special interest from the mine. The company continues its usual shipments.

Mexican and Ophir are well maintained. The joint Union incline winze, from the 1600 level of the Mexican mine, is down about 325 feet on the slope, in favorable-looking vein porphyry. The ore stopes on the 1900 and 2000 levels of the Ophir mine are yielding a good class of ore, yet the March product will scarcely reach that of the month previous.

Overman shows some improvement; 60,000 gallons of water per day are being raised from this mine.

Raymond & Ely showed at the close yesterday the best price of the week. Recent information from this mine states that cross-cuts on the various levels are being rapidly pushed ahead, while the ore-producing places are greatly improved. It is hoped to materially increase the bullion product during the present month.

Yellow Jacket shows an improvement. The new shaft is down 70 feet below the 2280 station, and is being sunk in hard, dry ground.

The new bonanzas mark a slight improvement, and the most active work is being prosecuted in both of these mines. The ore-body in the Sierra Nevada incline is improving, and assays are reported as very high. Operations are materially retarded in this mine, owing to the hard, brittle character of the rock encountered and the increase of water caused by stoppage of the pumps.

The Empire Mining Company, of Amador County, paid its seventh monthly dividend of $16,000 on March 31st. The seven dividends aggregate $112,000.

The Richmond Consolidated Mining Company paid its stockholders $447,500 in four quarterly dividends in 1878, equal to $8.75 per share.

The Bald Mountain Company, Sierra County, declared its first dividend for 1879 of $20,000 on March 7th.

The California Board of San Francisco has declared a dividend to its members of $25 per share.

Assessments, with dates when delinquent:

Mono, 50c., May 1st; Noonday, 20c., May 1st; North Noonday, 20c., May 2d; May Flower Gravel, 10c., April 30th; Amazon Cons., 10c., April 28th; Tuscarora, 5c., May 5th; Globe, 10c., April 30th; Lewis Consolidated, 2c., May 3d; Real del Monte, 5c., May 1st; Pinkham, 20c., May 7th.

GENERAL MINING STOCKS.

Dividend Paying Mines.

NAME AND LOCATION OF COMPANY.		Feet on Vein.	Capital Stock.	SHARES. No.	SHARES. Par Val	ASSESSMENTS. Total levied to date.	ASSESSMENTS. Date and amount per share of last.	DIVIDENDS. Total paid to date.	DIVIDENDS. Last Dividend.	DIVIDENDS. Rate p. An	HIGHEST AND LOWEST PRICES PER SHARE IN CURRENCY AT WHICH SALES WERE MADE. Apr. 5. H.	Apr. 5. L.	Apr. 7. H.	Apr. 7. L.	Apr. 8. H.	Apr. 8. L.	Apr. 9. H.	Apr. 9. L.	Apr. 10. H.	Apr. 10. L.	Apr. r. 11. H.	Apr. r. 11. L.	SALES.
Alps	Nev.	800		30,000		204,000	Aug. 1878 $1 00	37,500	Apr. 1876	$0 05													
Belcher, G. S.	Nev.	1,040	10,400,000	104,000	100	1,496,200	Feb. 1879 1 00	15,397,200	Apr. 1876	1 00													
Bobtail, G.	Col.	2,500	1,136,630	227,326	5	*		90,930	Nov. 1878	15													
Bobtail Tunnel, G.	Col.		100,000	20,000	5	52,000	July 1873 0 30	56,000	Dec. 1879	40													
Bodie, G.	Cal.		5,000,000	50,000	100	25,000	Feb. 1878 0 50	800,000	Jan. 1879	1 00	10½	10¼	10⅝	10									205
California, G. S.	Nev.	600	54,000,000	540,000	100			30,240,000	Jan. 1879	1 00	5⅝	5¼	6	5¾	6⅛	5⅞	6		6¼	6			900
Calumet & Hecla, C.	Mch		2,000,000	80,000	25	1,200,000		13,850,000	Feb. 1879	5 00	175	175	176½	176									61
Central, C.	Mch		500,000	20,000	25	100,000	June 1862 0 65	1,260,000	Feb. 1877	5 00													
Chollar, G. S.	Nev.	700	11,100,000	112,000	100	1,750,000	Sept. 1878 5 00	3,040,000	Feb. 1872	1 00													
Copper Falls, C.	Mch		1,000,000	20,000	50	535,000	May. 1876	100,000	Nov. 1871	1 00													
Cons. Virginia, G. S.	Nev.	710	54,000,000	540,000	100	474,600	June 1873 3 00	40,500,000	June 1878	1 00	5¾	5½	6⅜	6	6⅝	6⅜	6¼	6¼	6⅜	6			2,170
Confidence, G. S.	Nev.	130	2,496,000	24,960	100	256,320	Apr. 1878 0 50	78,000	May. 1865	8½													
Cons. Her. & Roe	Col.	16,500	1,000,000	100,000	10	*																	
Crown Point, G. S.	Nev.	600	10,000,000	100,000	100	1,973,370	Dec. 1878 1 00	11,588,000	Jan. 1875	2 00													
Daney	Nev.	2,000		108,000		91,800	Nov. 1878 0 20	56,000	July 1863														
Eureka Cons., G. S. L.	Nev.		5,000,000	50,000	100	100,000	May. 1876 1 00	3,600,000	Feb. 1879	2 00													
Eureka G. Mg., G.	Cal.	1,680	2,000,000	20,000	100			2,149,000	Apr. 1878	0 25													
Findley, G.	Geo.		200,000	200,000	1			40,000	Feb. 1879	10			58c	57c	58c	57c			58c	57c			2,200
Franklin, C.	Mch		500,000	20,000	25	360,000	June 1876 5 00	585,000	Nov. 1871	1 00													
Gila	Ariz			100,000		70,000	Jan. 1879 0 25	50,000	Aug. 1875	0 25													
Gould & Curry, G. S.	Nev.	612	10,800,000	108,000	100	2,936,000	Mar. 1879 1 00	3,826,800	Oct. 1870	10 00													
Grand Prize	Nev.	1,500		100,000		100,000	July. 1878 1 00	400,000	Feb. 1878	1 00			3¼				3¾						150
Hale & Norcross, G. S.	Nev.	400	11,200,000	112,000	100	3,082,000	Mar. 1879 1 00	1,598,000	Apr. 1871	5 00													
Homestake, G.	Dak		10,000,000	100,000	100			60,000	Feb. 1879	30	32¾	32	33	32¾	32¾		32		32½				580
Hukill, G. S.	Col.	3,288	1,000,000	100,000	10	*			Dec. 1878	0 10									2.50	2.40			200
Independence	Nev.	1,500		100,000		75,000	Feb. 1878 15	150,000	Nov. 1878	25	1.40						1.45	135	1.40				525
Kentuck, G. S.	Nev.	95	3,000,000	30,000	100	300,000	Aug. 1878 1 00	1,252,000	Mar. 1870	5 00													
K. K. Cons.	Nev.			50,000		300,000	Jan. 1879 1 00	50,000	Sept. 1873	0 25													
Leadville	Col.										2.55		2.50	2.45	2.70	2.45	2.70	2.60	2.85	2.60			9,020
Leeds	Uth.	3,000		60,000				78,000	Oct. 1878	0 10													
Leopard, L. G. S.	Nev.	1,500	5,000,000	50,000	100	225,000	Mar. 1879 50	162,500	Dec. 1876	0 50													
Manhattan	Nev.			50,000		50,000	Oct. 1878 1 00	400,000	Feb. 1877	1 00													
Merrimac, S.	Mas.	1,500	500,000	100,000	5	*	June	120,000	Mar.														
Minesota, C.	Mch.		1,000,000	20,000	50	436,000	1869 1 00	1,820,000	Mar. 1876	0 50													
Modoc	Cal.	4,000		100,000		450,000	Feb. 1879 0 50	50,000	Dec. 1876	0 50													
Moose	Col.	39,000	2,000,000	200,000	10	*		550,000	Mar. 1878	0 25	3		3.25	3.10	3.20	3.15	3.25	3.10	3.10	2.95			9,270
National, C.	Mch.		500,000	20,000	25	195,000	Oct. 1875 1 00	360,000	Oct. 1873	1 00													
N. Y. & Colorado, G.	Col.		1,000,000	50,000	20	*		20,000	Mar. 1877	0 20									2.05				200
Northern Belle, S.	Nev.	1,600	5,000,000	50,000	100			1,425,000	Feb. 1878	1 00													
Ontario.	Uth.	3,000	10,000,000	100,000	100			2,100,000	Apr. 1879	50			40½		40½		40		40½				110
Ophir, G. S.	Nev.	675	10,080,000	100,800	100	3,436,800	Nov. 1878 1 00	1,394,400	Mar. 1864	4 00													
Pewabic, C.	Mch.		500,000	20,000	25	185,000	June 1868 3 00	460,000	July 1873	1 00			50c										85
Potosi, G. S.	Nev	700	11,000,000	112,000	100																		
Phœnix, C.	Mch		1,000,000	20,000	50	817,500	Sept. 1870 3 00	10,000	Dec. 1876	1 00													
Plumas	Cal.		1,000,000	100,000	10			130,000	Mar. 1879	8	3.30	3.25							3.25	3.20			400
Quincy, C.	Mch.		200,000	20,000	10			2,230,000	Feb. 1878	5 00	11		11		11		11¼						551
Raymond & Ely, G. S.	Nev.	5,000	3,000,000	30,000	100	730,000	Jan. 1879 1 00	3,075,000	Sept. 1873	3 00													
Ridge, C.	Mch.		500,000	20,000	25	200,000		90,000	Feb. 1875	1 00			1										25
Rye Patch	Nev.	1,600		30,000		157,500	Dec. 1878 1 00	105,000	Dec. 1877	0 25													
St. Joseph, L.	Mo.	2,000 acs.	1,000,000	100,000	10			250,000															
Savage, G. S.	Nev.	800	11,200,000	112,000	100	4,196,500	Feb. 1879 1 00	4,460,000	June 1869	3 00													
Seaton, G. S.	Col.	1,700	500,000	50,000	10	*			May 1877	0 10													
Sierra Nevada, G. S.	Nev.	3,650	10,000,000	100,000	100	2,350,000	Oct. 1878 3 00	102,000	Jan. 1871	1 00													
Silver Islet	Mch										56½	56	56	53	54		54¼	54	54	53			531
Silver King	Ariz	1,500	10,000,000	100,000	100			450,000	Nov. 1878	0 50													
Standard	Cal.		10,000,000	100,000	100	50,000	July 1878 1 00	950,000	Mar. 1879	0 50									35¾	32¼			2,000
Yellow Jacket, G. S.	Nev.	1,200	12,000,000	120,000	100	3,918,000	Jan. 1879 1 00	2,184,000	Aug. 1871	2 50													
McClinton	Cal.	1,000		60,000		45,000	Dec. 1878 0 25																

Non-Dividend Mines.

Allouez, C.	Mch.		1,000,000	20,000	50	940,000	May 1876	5 00															
Alpha, G. S.	Nev.	306	3,000,000	30,000	100	240,000	Mar. 1878	1 00															
Alta	Nev.	600		108,000		1,101,000	Feb. 1879	1 00															
Am. Flag, G.	Col.	5,300	600,000	60,000	10	*																	
Andes	Nev.	2,000		100,000		355,000	Oct 1878	0 25															
Baltimore Cons.	Nev.	1,050		84,000		1,015,000	Apr. 1878	0 50															
Benton	Nev.	600		108,000		91,800	Dec. 1878	0 50															
Bechtel	Cal.			60,000		81,000	Feb. 1879	0 10					2										70
Bertha & Edith, G.	Vir.	645 acs.	500,000	500,000	10	*					32c	29c	31c	25c	32c	27c	33c	30c	32c	29c			162,050
Best & Belcher, G. S.	Nev.	545	10,080,000	100,800	100	538,590	Jan. 1879	1 00															
Boyle	Nev.	600		108,000		16,240	Aug. 1878	0 15															
Buckeye	Col.		2,000,000	400,000	5	*					45c	41c	44c	40c	43c.	42c	50c	43c	44c	42c			33,000
Bullion, G. S.	Nev.	943⅛	10,000,000	100,000	100	3,002,000	Dec. 1878	1 00															
Caledonia, G. S.	Nev.	2,188	10,000,000	100,000	100	1,590,000	Jan. 1879	0 50															
Cashier	Col.		500,000	250,000	2	*																	
Challenge	Nev.	90		50,000		10,000	Nov. 1878	0 20															
Cleveland, G	Col.	3,715	250,000	25,000	10	*																	
Cons. Imperial, G. S.	Nev.	468	50,000,000	500,000	100	875,000	Feb. 1879	0 20					1.55	1.40	1.50	1.45	1.60		1.60	1.55			1,170
Con. N. Slope & E. T.C.	Col.	15,000	500,000	10,000	50																		
Con. Pacific	Cal.	1,400		60,000													2.25						100
Dahlonega	Ga.		250,000	250,000	1						23c	24c	22c		23c	22c	24c	23c	23c	22c			9,900
Dana, C.	Mch.		500,000	20,000	25	68,000	Jan. 1863	0 50															
Dawson, S.	Ont.		1,200,000	60,000	20		1878																
Day	Nev.	1,500		100,000		70,000	Feb. 1879	0 15															
Dayton	Nev.	1,600		100,000		750,000	Apr. 1878	0 25															
De Frees	Ariz	1,500		100,000		115,000	Oct. 1878	15															
Duncan, S.	Ont.		1,200,000	60,000	20	75,000	July 1876	41⅔					4¼	4⅛									100
Exchequer, G. S.	Nev.	400	10,000,000	100,000	100	480,000	Feb. 1879	1 00															
Gold Placer, G.	Col.		5,000,000	200,000	25						23c	27c	30c	27c	26c	24c			23c	22c			15,600
Granville, G.	N. C.	357 acs.	1,000,000	100,000	10	*		0 50			18c				17c	16c							1,100
Humboldt, C.	Mch.		500,000	20,000	25	100,000	Sept 1878	0 15															
Hussey	Nev.	4,500		100,000		110,000	Jan. 1879	0 15			25c												1,000
International, S.	Ont.		1,200,000	60,000	20																		
Julia, G. S.	Nev.	3,000	11,000,000	110,000	100	872,500	Jan. 1879	1 25							4								10
Justice, G. S.	Nev.	2,100	10,500,000	105,000	100	2,703,500	Jan. 1879	1 00															
King's Mountain, G.	N. C.		1,200,000	120,000	10	*					1.60	1.40											200
Kossuth	Nev.	2,700		108,000		421,200	Aug. 1877	0 15											15c				100
Lacrosse	Col.	3,900	1,000,000	100,000	10	*					28c		29c	27c	28c	26c	29c	27c	30c	28c			17,500
Leviathan	Nev.	2,000		100,000		265,000	Mar. 1879	25			20c												300
Luzerne	Col.	4,200	5,000,000	500,000	10	*																	
Madison, C.	Mch.		500,000	20,000	25	123,000	Sept 1876	0 10															
Mariposa preferred	Cal.	44,387	5,000,000	50,000	100	1,425,000	June 1877	1 00							3		3¼						200
" common	Cal.	acres.	10,000,000	100,000	100	1,425,000	June 1878	1 00									2¾						100
McCracken	Ariz	4,500		100,000		100,000	Oct 1878	0 50															
Martin White	Nev.			100,000		650,000	Dec. 1878	1 50															
Mesnard, C.	Mch.		500,000	20,000	25	160,000	Apr. 1876	0 50															
Mexican, G. S.	Nev.	600	10,080,000	100,800	100	217,400	May. 1878	0 50															
Minnietta Belle	Cal.	1,500		100,000		75,000	Apr. 1878	0 50															
Mt. Bross Tunnel	Col.	8,600	2,000,000	200,000	10	*	1878																
Navajo	Nev.	1,500		100,000		145,000	Feb. 1879	0 20															
New York	Nev.	1,000		100,000		800,000	Feb. 1879	0 40															
Occidental	Nev.	1,706		40,000		72,500	Feb. 1877	0 25															
Orig. Keystone	Nev.	1,500	1,000,000	100,000	10	50,000	Oct. 1878	0 50															
Overman, G. S.	Nev.	1,200	3,840,000	38,400	100	3,404,280	Jan. 1879	3 00															
Osceola, C.	Mch.		1,000,000	40,000	25	2,567,880	Nov. 1877	3 00			11¼												25
Petherick, C.	Mch.		500,000	20,000	100	165,533	Mar. 1876	0 50															
Pleasant View, G.	Col.	1,200	200,000	20,000	10	*																	
Quicksilver preferred	Cal.	8,500	4,291,300	42,913	100	*																	
" common	Cal.	acres.	5,708,700	57,087	100								12½						12¼				400
Rockland, C.	Mch.		500,000	20,000	25	495,000	Jan. 1874	1 00															
Seg. Belcher, G. S.	Nev.	160	640,000	6,400	100	244,800	Apr. 1876	5 00															
Silver Hill, G. S.	Nev.	5,400	10,800,000	108,000	100	1,350,000	Jan. 1879	0 50															
Silver Prize	Nev.	1,500		100,000		65,000	Feb. 1879	0 25															
Star, C.	Mch.		500,000	20,000	25	265,000	Mar. 1876	0 50															
Superior, C.	Mch.		500,000	20,000	25	340,000	Mar. 1878	0 25															
Sutro Tunnel	Nev.		20,000,000	2,000,000	10			0 50			4¼	4	4⅜	4	4		75c		4⅛				1,530
Tiptop	Ariz			100,000		120,000	July 1878																100
Tioga	Cal.	1,500		100,000		60,000	Dec. 1878	0 20															
Trio	Col.	1,250	150,000	150,000	1								60c						56c				150
Trojan	Nev.	1,500		100,000		240,000	Oct. 1878	0 25															
Tuscarora	Nev.			100,000		25,000	Mar. 1879	0 05			9c	5c	7c	5c	7c		8c		9c	8c			9,050
Union Cons. G. S.	Nev.		10,000,000	100,000	100	310,000	Apr. 1878	0 25															
Utah	Nev.	1,000		20,000		780,000	Feb. 1879	3 00															
Ward	Nev	1,200		110,000		99,000	Jan. 1879	0 30															
Wells Fargo	Nev.	1,500		108,000		216,000	Sept. 1878	0 50															

Total Assessment levied to date..... ....$64,917,513

G. Gold. S. Silver. L. Lead. C. Copper. * Non-Assessable.
Total Dividends paid to date..... ....$153,812,380

Total Sales for the week..... ..... 282,418.

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